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SOCIAL STATUS IN THE EARLY ADOLESCENT PEER SYSTEM
IN THE UNITED STATES AND CHINA

BY

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DISSERTATION

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Abstract

Youth with high social status have the potential to play an important role in socializing their peers during adolescence. Unfortunately, there has been little empirical attention to this issue, particularly outside the West. My dissertation examined the characteristics that contribute to social status in the United States and Mainland China (Study 1) and the potential influence high-status youth have on their peers in the academic domain (Study 2) during early adolescence. Beginning with the entry into middle school, 3 times over 12 months, 934 youth (mean age = 12.7 years) in the United States and China made behavioral (i.e., prosocial behavior and academic engagement) and social status (i.e., sociometric popularity, perceived popularity, and admiration) nominations of their peers. They also reported on their antisocial behavior and academic engagement at these time points.

In both the United States and China, peer nominations of youth's positive behavior were predictive of their heightened social status (Study 1). However, consistent with differences in cultural values (e.g., interdependence), this was stronger in China, particularly for perceived popularity, which had the least positive behavioral nomination profile in the United States, but not China. In Study 2, the academic engagement of peers that youth nominated as high in sociometric and perceived popularity, but not of peers they admired, was predictive over time of youth's own academic engagement in the United States and China. Notably, this effect was evident over and above any initial similarity youth had with high-status youth they nominated. Taken together, the two studies suggest that one mechanism by which cultural values shape youth in the United States and China is social status in the peer system.

Key words: adolescence, academic engagement, culture, peers, social status, socialization

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TABLE OF CONTENTS

CHAPTER 1: GENERAL INTRODUCTION	1
CHAPTER 2: STUDY 1 CHARACTERISTICS OF SOCIAL STATUS IN THE EARLY ADOLESCENT SYSTEM IN THE UNITED STATES AND CHINA.....	3
2.1 Introduction.....	3
2.2 Method	12
2.3 Results.....	16
2.4 Discussion	23
CHAPTER 3: STUDY 2 GENERAL CONCLUSIONS EARLY ADOLESCENT SOCIAL STATUS AND ACADEMIC ENGAGEMENT: SELECTION AND INFLUENCE EFFECTS IN THE UNITED STATES AND CHINA	35
3.1 Introduction.....	35
3.2 Method	43
3.3 Results.....	50
3.4 Discussion	54
CHAPTER 4: GENERAL CONCLUSIONS.....	61
CHAPTER 5: TABLES AND FIGURE	64
REFERENCES	70
Appendix A.....	87
Appendix B	88
Appendix C	89
Appendix D.....	90
Appendix E	91
Appendix F.....	92
Appendix G.....	94

CHAPTER 1: GENERAL INTRODUCTION

Socialization refers to the process through which children acquire the values and norms of the culture in which they live (for a review, see Bugental & Grusec, 2006). Parents have generally been viewed as the key mechanism through which such values and norms are transmitted to children (e.g., Chen & French, 2008; Greenfield et al., 2003; Greenfield, 2009). Indeed, a wealth of research conducted in different countries suggests that parents play a role in cultural socialization (e.g., Chang, 2004; Ng, Pomerantz, & Lam, 2007; Tam, Lee, Kim, Li, & Chao, 2012; Kim-Pong Tam & Chan, 2015; Miller, Wiley, Fung, & Liang, 1997; Tsai, Telzer, Gonzales, & Fuligni, 2015). However, other social forces may also be important (for a review, see Rubin et al., 2015). Of particular note, youth spend an extensive amount of time interacting with peers in school and their spare time (Larson & Verma, 1999), which may lead the peer system to be influential (for a review, see Brown & Bakken, 2008). Within the peer system, youth with heightened social status—that is, those who are well liked, viewed as cool, or admired by their peers—may be a significant source of influence because they are viewed as role models by their fellow peers and are crucial in setting up the norms in the peer system (e.g., Cohen & Prinstein, 2006; Rodkin, 2006; Rodkin & Ryan, 2012; Sandstrom, 2011).

The goal of my dissertation was to move toward understanding both the antecedents and consequences of social status in not only the United States where the large majority of the research has been conducted, but also in China where cultural values and norms that are different from those in the United States may lead to differences in social status in the peer system in the two countries. Focusing on early adolescence, which is often considered a time of heightened peer influence (for a review, see Sandstrom, 2011), I had two specific aims. The first was to identify if there are differences in the United States and China in the attributes that contribute to

social status in the peer system. Such an issue is important given that if youth high in social status have attributes in line with the values and norms of their culture, they may reinforce such values and norms by transmitting their attributes to their peers. Indeed, my second aim was to identify if youth high in social status play a role in their peers' academic engagement in the United States and China. Although the role of social status has been established for other types of behavior (e.g., aggression), it has not been established for academic engagement, which declines over early adolescence in the United States, but not China (e.g., Qu, Pomerantz, Wang, Cheung, & Cimpian, 2016; Wang & Pomerantz, 2009), perhaps due in part to differences in the two countries in such engagement among high status youth.

CHAPTER 2: STUDY 1

Characteristics of Social Status in the Early Adolescent System in the United States and China

2.1 Introduction

As youth move into adolescence, peers become more important in their lives (for reviews, see Collins & Laursen, 2004; Smetana, Campione-Barr, & Metzger, 2006). Youth with high social status may be particularly influential given that social status signals youth's position, power, and prestige in the peer system (e.g., Allen, Porter, McFarland, Marsh, & McElhaney, 2005; Ladd & Troop-Gordon, 2003; Troop-Gordon, Visconti, & Kuntz, 2011; Wentzel & Caldwell, 1997). Decades of research conducted in the West indicates that youth's social status takes a variety of forms, with varying behavioral profiles (for reviews, see Cillessen & Rose, 2005; Cillessen, 2009; Rodkin & Ryan, 2012). In general, youth who are well liked or admired by their peers possess primarily positive characteristics (e.g., prosocial behavior), whereas those who are perceived as popular (e.g., seen as "cool") display a mixture of positive and negative characteristics (e.g., antisocial behavior) (e.g., Galván, Spatzier, & Juvonen, 2011; Graham, Taylor, & Hudley, 1998; Mcpherson, Smith-lovin, & Cook, 2001; Rodkin, Farmer, Pearl, & Van Acker, 2000; Rodkin, Farmer, Pearl, & Van Acker, 2006). Positive behavioral profiles are less common among youth perceived as popular during adolescence (e.g., Cillessen & Borch, 2006; Galván et al., 2011; Rose, Swenson, & Waller, 2004).

Cultural values and norms may play a role in determining the behavioral profiles that define social status (Chen & French, 2008; Chen, Fu, & Leng, 2014), leading such profiles to vary from culture to culture (Brown, 2011). Because collectivist cultures such as China prioritize interdependence more than do individualistic cultures such as the United States (Markus & Kitayama, 1991; Triandis, 1989; Triandis, Bontempo, Villareal, Asai, & Lucca, 1988), behavior

that maintains harmony with peers (e.g., prosocial behavior) and adults (e.g., school engagement) may be particularly important to social status in collectivistic cultures (Chen & French, 2008). In addition, because adolescence in collectivistic cultures may not be a time of individuating from adults to the same extent as in individualistic cultures (e.g., Pomerantz, Qin, Wang, & Chen, 2011; Qu, Pomerantz, Wang, Cheung, & Cimpian, in press; for reviews, see Arnett, 1999; Nelson & Chen, 2007), positive behavior may remain important to perceived popularity during this phase of development. Unfortunately, there has been limited attention to youth's social status during adolescence in collectivist cultures (for an exception, see Niu, Jin, Li, & French, 2015). Focusing on the United States and China, the goal of the current research was to take a step toward better understanding the role of culture in social status in the peer system during early adolescence.

Types of Social Status and Their Overlap During Early Adolescence

Theory and research concerned with youth's social status in the peer system have generally focused on three central forms of social status. *Sociometric popularity* reflects youth's acceptance by others in the peer system—also thought of as social preference (for a review, see Cillessen & Rose, 2005). It is typically assessed by peer nominations or ratings, probing how much youth like their classmates (e.g., De Laet et al., 2014; Logis, Rodkin, Gest, & Ahn, 2013; Parker & Asher, 1987; Wentzel & Caldwell, 1997). Measures of acceptance (e.g., “Rate how much you would like to be in school activities with this person?”) and peer preference (e.g., “Who are the kids in your grade that you personally like the best?”) are considered indicators of likability (for a review, see Cillessen, 2009). *Perceived popularity*, in contrast, refers to youth's social dominance, visibility, prestige, and ability to control resources in the peer group (for a review, see Pellegrini, Roseth, Ryzin, & Solberg, 2009). It is generally evaluated with youth's

nominations of peers whom they perceive to be “popular” or “cool” (e.g., Rodkin et al., 2000; Rodkin et al., 2006; Rose et al., 2004). A third, and less studied, dimension of social status is how much youth are *admired and respected* by their peers. A few scholars (Duong, Schwartz, & Mccarty, 2014; Graham et al., 1998; Taylor & Graham, 2007) have made the case that this type of social status reflects what youth value and desire in their peers, which may in part be derived from their understanding of what their culture regards as most important. This form of social status has been assessed with youth’s nominations of classmates whom they admire, respect, or want to be like.

Although sociometric and perceived popularity have been argued to be distinct constructs capturing distinct facets of social status (Cillessen & Rose, 2005), there is considerable overlap between the two during adolescence. For example, LaFontana and Cillessen (2002) found that the two types of social status were substantially correlated ($r_s = .59$ to $.69$) during middle school in the United States (see also Cillessen & Mayeux, 2004). Niu and colleagues (2015) reported a similar correlation ($r = .61$) between the two among youth in eighth grade in Mainland China. Unfortunately, there has not been examination of the extent to which sociometric and perceived popularity are associated with admiration. However, because admiration reflects what youth value and desire in their peers, such examination could provide insight into whether sociometric and perceived popularity are similarly positive in youth’s eyes.

Defining Characteristics of Social Status in the United States

In the United States, well-liked youth possess mainly positive behavioral profiles. The more likable youth are, the more prosocial and cooperative and the less antisocial and deviant they are (e.g., Galván, Spatzier, & Juvonen, 2011; LaFontana & Cillessen, 2002). For example, studying seventh and eighth graders, Parkhurst and Hopmeyer (1998) found that well-liked youth were high in kindness and trustworthiness as well as low in aggression. Youth who are well-liked

also tend to do well in school (e.g., Frenzt, Gresham, & Elliot, 1991; Hatzichristou & Hopf, 1996; Wentzel, 1991). Wentzel and Caldwell's (1997) research, for example, revealed positive concurrent links between peer acceptance and youth's grades during early adolescence.

Longitudinal research indicates that these associations reflect bidirectional effects, such that achievement consistently predicts sociometric popularity over time, which in turn predicts subsequent achievement, albeit less consistently (e.g., Véronneau, Vitaro, Brendgen, Dishion, & Tremblay, 2010; Welsh, Parke, Widaman, & Neil, 2001).

Perceived popularity is associated with a mixture of positive and negative characteristics among American youth (e.g., Galván et al., 2011; LaFontana & Cillessen, 2002). Youth perceived as popular are characterized by their peers as attractive, athletic, and sociable, but also manipulative and controlling (e.g., Boyatzis, Baloff, & Durieux, 1998; LaFontana & Cillessen, 2002). Compared with well-liked youth, youth with high perceived popularity exhibit less prosocial and more antisocial behavior (e.g., Cillessen & Borch, 2006; LaFontana & Cillessen, 2002; Garandeau, Ahn, & Rodkin, 2011; Rose, Swenson, & Waller, 2004). There is mixed evidence regarding the achievement of youth perceived as popular. Some studies find a modest positive association between perceived popularity and academic success (e.g., LaFontana & Cillessen, 2002), but others find no association (e.g., Adler, Kless, & Adler, 1992; Boyatzis et al., 1998; Meijs, Cillessen, Scholte, Segers, & Spijkerman, 2010) or a negative association (e.g., de Bruyn & Cillessen, 2006; Gorman, Kim, & Schimmelbusch, 2002). By adolescence, the attributes of popular youth are even less positive (e.g., Cillessen & Borch, 2006; Garandeau et al., 2011; Juvonen & Murdock, 1995; Rose et al., 2004), presumably due to youth asserting their independence by diverging from societally valued standards (Moffitt, 1993).

There has been less theoretical and empirical attention to youth who are admired by their peers. On the one hand, youth may admire peers who engage in behavior that makes them powerful and dominant, which may include aggression. Moreover, such behavior may be a sign of independence, which may be particularly admired during adolescence. Hence, youth admired by their peers may have behavioral profiles similar to those of youth perceived as popular. On the other hand, youth may admire attributes that make their peers likable or successful in regards to meeting societally valued standards. In this case, admired youth may display behavioral profiles similar to the profiles of likable youth, such that they are particularly prosocial and academically engaged. To date, a few studies that address this issue support the latter: Graham and colleagues' (1998, 2007) research with African American youth in the second to eighth grades indicates that youth admire peers who follow the rules and are academically engaged. A similar trend is evident among Vietnamese- and Mexican-American middle-school youth (Duong, Schwartz, & Mccarty, 2014).

Defining Characteristics of Social Status in China

Cultural norms and values may play an important role in social status (Chen & French, 2008). China's collectivist orientation prioritizes interdependence (Markus & Kitayama, 1991; Oyserman, Coon, & Kemmelmeier, 2002; Triandis, 1989). The emphasis on interdependence may promote prosocial behavior among youth as it can facilitate harmony and cohesiveness, particularly among members of a group, such as students in a classroom; antisocial behavior, in contrast, may be strongly discouraged because of the threat to social harmony (Chen & French, 2008; Chen, Fu, & Leng, 2014). Chinese culture is also influenced by Confucianism, which places emphasis on learning because it is seen as central to knowledge acquisition as well as a life-long commitment to building moral character (Li, 2003). Moreover, doing well in school is

pragmatically important for Chinese youth given the fierce competition for entrance into top schools, with major implications for success as an adult. Although prosocial behavior and academic engagement are also valued in the United States, the cultural emphasis on self-expression and individual freedom makes them less important (Chen, 2012). In addition, diverging from the United States where adolescence is viewed as a time of establishing independence, this phase of development is viewed more as a time of fulfilling family responsibilities in China (Pomerantz et al., 2011; Qu et al., in press), which may require youth to abide by societal norms by being prosocial and academically engaged. Hence, prosocial behavior and academic engagement may be more central to social status in China than the United States.

The handful of studies on social status in the peer system in China suggest that social status, including perceived popularity, is characterized largely by positive attributes. Studying youth from China during adolescence, Niu and colleagues (2015) found that similar to the United States, sociometric popularity was associated exclusively with positive attributes (e.g., academic achievement). Although perceived popularity was associated with aggression as in the United States, it was also associated with positive attributes (e.g., prosocial behavior), with some associations being even stronger than those for sociometric popularity. Research during the elementary school years finds that perceived popularity is characterized by mainly positive behavioral profiles (e.g., prosocial behavior and academic engagement) in China (e.g., Tseng, Banny, Kawabata, Crick, & Gau, 2013; but see Schwartz et al., 2010). For example, Li, Xie, and Shi (2012) found that Chinese (vs. American) youth described prototypical youth perceived as popular as more prosocial and academic.

Overview of the Current Research

The goal of this research was to elucidate the characteristics that contribute to social status in the United States and China during the initial years of adolescence. I focused on prosocial behavior and academic engagement. Research on social status has tended to focus more on negative characteristics like aggression and bullying than positive characteristics (e.g., Cillessen & Borch, 2006; Cillessen & Mayeux, 2004; Dijkstra, Lindenberg, & Veenstra, 2008; Garandeau et al., 2011; Mayeux, 2014; Rodkin et al., 2006; Rose et al., 2004). However, positive characteristics have been shown to play an important role (e.g., Cillessen & Borch, 2006; Graham et al., 1998; LaFontana & Cillessen, 2002; Niu et al., 2015; Wentzel & Caldwell, 1997). Thus, more attention to positive attributes is needed. This is important given that negative characteristics are fairly infrequent during adolescence in the United States: Approximately 20% to 25% of American youth have some experience in bullying as perpetrators, victims, or both (for a review, see Juvonen & Graham, 2014), with only 4% to 9% of youth regularly engaging in bullying (for a review, see Stassen Berger, 2007). In China, antisocial behavior is even less prevalent than in the United States (e.g., Jessor, Turbin, & Costa, 2003; Jessor & Turbin, 2014). Too much of a focus on infrequent negative behaviors can adversely skew our view of early adolescent peer culture. Many scholars and practitioners have warned against a deficit-based orientation and encouraged a more strength-based orientation (e.g., Cox, 2006; Hiemstra & Yperen, 2015; Jain & Cohen, 2013). Thus, our focus on the relation of prosocial and academic engagement to social status makes an important contribution to the literature.

In the research to date, there has been some attention to social status in the peer system in China (e.g., Li et al., 2012; Niu et al., 2015; Tseng et al., 2013); however, the existing research suffers from several methodological limitations that make it difficult to draw conclusions about

whether culture shapes social status. First, there has not been sufficient comparison of American and Chinese samples given that the studies to date have generally been conducted exclusively in China (e.g., Niu et al., 2015; Schwartz et al., 2010; Tseng et al., 2013). Thus, it is unclear if the findings differ from those that would be yielded by research using identical methods with a comparable sample from the United States. Such a comparison provides an important window into the role of culture in shaping youth's social status given that the United States and China have been argued to be quintessential examples of individualist and collectivist cultures (Triandis et al., 1988). In the research to date, there is only one comparative study. This study asked youth to describe *prototypical* youth perceived as popular (Li et al., 2012). Because it did not use the peer nomination technique, the study indicates what behaviors youth think define perceived popularity, but not what behaviors do so in reality. In the current research, we included youth residing in the United States and youth residing in Mainland China; much attention was given to sampling youth from areas that are comparable in the two countries (e.g., in regards to population density, socioeconomic status, and achievement level of the schools). To capture the characteristics that define social status in reality, peer nomination techniques were used to assess youth's behavior and their social status.

Second, longitudinal research on the role of youth's behavior in their social status has been nearly absent in China (for an exception, see Tseng et al., 2013), with no longitudinal research comparing American and Chinese youth. Hence, the direction of effects reflected in the associations identified in prior research between youth's behavior and their social status is unclear in China. To address this issue, the current research used a three-wave longitudinal design, with six months between each of the waves. Hence, it was possible to examine not only the concurrent associations between behavior and social status, but also the prospective

associations. That is, I was able to evaluate the contribution of youth's behavior to their social status over time, thereby providing a window into the direction of effects. The design also provided the opportunity to examine whether youth's social status contributes to their behavior over time. Drawing from cumulative continuity theory, Allen, Schad, Oudekerk, and Chango (2014) make the case that to maintain their social status, high status youth sustain and even intensify the behavior that initially bought them status, thereby leading to more status-consistent behavior over time. In addition, the higher youth's social status, the more positive their behavior may be over time due to heightened social support at school, which may foster youth's sense of belongingness and ultimately involvement at school (Véronneau et al., 2010; Welsh et al., 2001).

Third, simultaneous examination of multiple types of social status has been limited. Hence, it is unclear if variations in the United States and China in the predictors of social status are manifest across different types of social status or limited to certain types (e.g., perceived popularity). To address this issue, I included not only sociometric popularity and perceived popularity, but also admiration, which has never been examined simultaneously with the other two forms of social status. The inclusion of the three types of social status permitted comparisons between the United States and China in the overlap and predictors of the three. The tendency for social status to be defined by positive behavioral profiles may be stronger for all three types of social status in China than the United States. This difference may be particularly evident for perceived popularity given that Chinese youth may be less concerned than are American youth with establishing their independence as they begin adolescence. Consequently, behavior in line with societally valued standards may be a stronger predictor of perceived popularity in China than the United States, leading perceived popularity to overlap more with admiration in China (vs. the United States).

2.2 Method

Participants

Participants were 934 youth in the United States and China. In the United States, there were 420 youth (mean age = 12.75 years in the fall of seventh grade; 212 boys) from four public middle schools in the Midwest which serve primarily working- to middle-class families. Three schools were in small urban areas and one was in a rural area. The 2014 United States Census indicates that the areas where schools were recruited have population densities ranging from 1523 to 2449 people per square mile. In the small urban areas, 17% to 33% of the population over the age of 25 had at least a 4-year college degree, with median family gross incomes between \$27,161 and \$58,451. In the rural area, only 6% of the population over the age of 25 had a 4-year college degree or more, with the median family gross income being \$34,426. The schools differed in their levels of achievement: Two schools achieved above the state average, one achieved at the state average, and one achieved below the state average. Reflecting the ethnic composition of the areas from which youth were recruited, they were primarily European American (95%), with 2% African American, and 3% Hispanic.

In China, participants were 514 youth (mean age = 12.60 years in the fall of seventh grade; 276 boys) from three public middle schools serving a major urban area in Shandong province, the northeast district of China. As the birthplace to Confucius, Shandong province is considered the cradle of Chinese civilization. It is relatively traditional, with far less exposure to Western culture than large metropolitan areas such as Beijing and Shanghai. The population density of the area from which youth were recruited was comparable to those for the areas from which youth were recruited in the United States. There were 1930 people per square mile, with 19% of the population over the age of six having at least a 4-year college degree. The annual

discretionary income per capita (i.e., income after deduction of taxes and other mandatory charges) was ¥32,570 (Jinan Statistical Year Book, 2013). Two of the schools were located at the outskirts of the urban area where the population densities, educational attainment, and economic levels are below that for the area as a whole; one school was in the center of the area where the population density, educational attainment, and economic development levels were above that for the area as a whole. The schools differed in their levels of achievement, with one high-achieving school, one average-achieving school, and one low-achieving school. Reflecting the ethnic composition of the areas from which youth were recruited, over 98% of the participants were of the *Han* ethnicity, which is the majority ethnicity in Mainland China.

Procedure

Beginning in the seventh grade, youth in the United States and China participated in three waves of data collection six months apart: Wave 1 took place in the fall of seventh grade when both American and Chinese youth made the transition to middle school, Wave 2 took place in the spring of seventh grade, and Wave 3 took place in the fall of eighth grade. Trained native research assistants administered surveys to youth in their native language in the classroom during two 45-min sessions. Youth completed the surveys on their own; they were given a sheet of paper to cover their answers to ensure privacy. Research assistants also emphasized that youth should not share their answers with their peers; particular note of this point was made when youth completed the peer nominations. In both countries, an opt-out consent procedure was used in which parents received a letter describing what was involved in participating in the study. If they did not want their youth to participate, they could contact the school; otherwise, youth took part in the research unless they themselves chose not to do so. Youth who did not participate read or did homework quietly in the classroom while their peers took part in the survey. Participation

rates were 94% in the United States and 97% in China. Attribution over the entire study was 4% (8% in the United States and 1% in China). At Wave 1, youth with no missing data at the subsequent waves did not differ from those with missing data at the subsequent waves on any of the variables examined in this report.

Measures

The measures were initially developed in English. Standard translation and back-translation procedures (Brislin, 1980) were employed with repeated discussion among a group of English and Chinese experts to modify the wording of the items to ensure equivalence in meaning between the English and Chinese versions (Erkut, 2010). Linguistic factors were taken into account to ensure that the measures were naturally comprehensible to youth in both countries.

At each wave, youth made peer nominations using a list of the names of the students in the group (e.g., grade, team, or class) with whom they shared classes throughout the day (for similar methods, see Cillessen & Borch, 2006; Rodkin, 2006). Groups ranged from 75 to 90 students in the United States and 48 to 62 students in China. In American middle schools, youth travel from teacher to teacher with a different mixture of 20 to 25 students from their group in each class. When youth move to eighth grade, the groups shift in schools that have more than one group, but stay the same when there is only one group. In Chinese middle schools, students in the same group stay together for every class, with different teachers coming to their classroom. The youth remain in the same group for eighth grade. To aid youth's search in making nominations for each question (see below), the names of students in their group were arranged alphabetically and by gender. Consistent with peer nomination methods used in prior research (e.g., LaFontana &

Cillessen, 2002; Logis, Rodkin, Gest, & Ahn, 2013), youth were told to nominate as many or as few peers as they desired.

Social status. Three types of social status were assessed. At each wave, youth checked the names of peers (1) with *sociometric popularity*, that is, peers whom they personally liked the most (喜欢交往的孩子); (2) with *perceived popularity*, that is, peers whom they perceived to be popular (受欢迎, 人气高); and (3) whom they *admired*, respected, and wanted to be like (仰慕、尊重、想变成的孩子). Translating perceived popularity into Chinese is challenging given that there is not a Chinese term that perfectly corresponds to the term in English. In the current research, following Niu and colleagues (2015), I used two Chinese terms (i.e., 人气高、受欢迎) to represent perceived popularity. Together the two refer to youth who are well-known and who get much attention in the peer system. For each of the three types of social status, a proportion score was calculated by taking the number of nominations (e.g., for sociometric popularity) that each student received and dividing it by the number of students in their group, thereby controlling for the size of the group. The proportion scores were arcsine transformed to ensure an even distribution of the scores (Cohen & Cohen, 1983).

Prosocial behavior. Peer nominations of prosocial behavior were made following LaFontana et al. (2002). At each wave, youth nominated their peers (1) who were really kind and willing to help others (非常善良并且乐于助人) and (2) who were really nice – for example, always willing to do something nice for someone else (待人非常好 – 比如, 总是愿意为别人做一些好的事情). Because the two items were highly correlated at each wave ($r_s = .93$ to $.94$ in the United States and $.77$ to $.95$ in China, $p_s < .001$), the average of their arcsine transformed proportions was taken as an index of prosocial behavior.

Academic engagement. The peer nomination technique was also used to assess youth's academic engagement. Using Graham et al.'s (1998) methods, at each wave, youth nominated peers (1) who worked hard and got good grades in school (学习刻苦, 成绩好) and (2) who paid attention in class and listened to the teacher (上课认真听讲, 听老师的话). A proportion score for each item was computed by taking the number of nominations that each student received and dividing it by the number of students in their group. Given substantial correlations between the two items at each wave ($r_s = .91$ to $.92$ in the United States and $.85$ to $.87$ in China, $p_s < .001$), the two arcsine transformed proportion scores were averaged to index youth's academic engagement.

2.3 Results

What is the Overlap Among the Three Types of Social Status?

In a set of preliminary analyses, I examined if the overlap between the three types of social status (i.e., sociometric popularity, perceived popularity, and admiration) varies in the United States and China. To this end, the zero-order correlations between the different types (e.g., sociometric popularity and perceived popularity) at each wave were compared between the two countries with independent correlation comparisons using Fisher's r -to- z transformations. As shown in Table 1, consistent with prior research conducted with American and Chinese youth (e.g., LaFontana & Cillessen, 2002; Niu et al., 2015), there was substantial overlap between sociometric popularity and perceived popularity ($r_s = .72$ to $.75$ in the United States and $.75$ in China); the overlap did not differ in the United States and China, $z_s < 1$. Admiration was also substantially associated with sociometric popularity in the two countries, with no differences between the two during the last two waves of the study ($r_s = .73$ and $.79$ in the United States and $.75$ and $.78$ in China), $z_s < 1$, but the association was stronger at Wave 1 in the United States ($r = .85$) than China ($r = .77$), $z = 3.57$, $p < .001$. However, admiration was more strongly

associated with perceived popularity in China ($r_s = .80$ to $.86$) than the United States ($r_s = .55$ to $.68$) at all three waves, $z_s > 7.03$, $p_s < .001$.

What Characteristics Predict Social Status?

The predictors (i.e., prosocial behavior and academic engagement) of social status in the United States and China were investigated in two sets of analyses. First, concurrent analyses using comparisons of zero-order correlations allowed examination of the co-occurrence of prosocial behavior and academic engagement with each of the three types of social status in the two countries. Second, I evaluated the direction of effects reflected in the concurrent analyses with prospective analyses using bidirectional cross-lagged structural equation modeling (SEM) conducted with AMOS 20.0 (Arbuckle, 2011). AMOS utilizes full information maximum likelihood (FIML) estimates, which provide more reliable standard errors to handling missing data under a wider range of conditions than does not only list and pairwise deletion but also mean imputation (Wothke, 2000).

Concurrent analyses. The zero-order correlations between each of the behaviors (e.g., academic engagement) and each type of social status (e.g., admiration) at each wave were compared in the United States and China with independent correlation comparisons using Fisher's r -to- z transformations. As shown in Table 2, consistent with expectations, regardless of time of assessment, prosocial behavior and academic engagement nominations were more strongly associated with all three types of social status in China ($r_s = .72$ to $.91$) than the United States ($r_s = .29$ to $.74$), $z_s > 2.08$, $p_s < .05$.

I next investigated variations among the three different types of social status in terms of co-occurring behavior in the United States and China. To this end, the zero-order correlations between each of the behaviors (e.g., academic engagement) and each type of social status (e.g.,

admiration) at each wave were compared with one another within each country with dependent correlation comparisons using Fisher's r -to- z transformations. In the United States, consistent with prior research with American youth (e.g., LaFontana & Cillessen, 2002; Cillessen & Borch, 2006), youth perceived as popular were least likely to be nominated as prosocial and academically engaged, whereas youth who were admired were most likely to receive such nominations. Specifically, sociometric popularity was more strongly associated with prosocial behavior and academic engagement ($r_s = .60$ to $.68$) than was perceived popularity ($r_s = .29$ to $.43$) at each wave, $z_s > 8.69$, $p_s < .001$. Admiration was more strongly associated with prosocial behavior and academic engagement ($r_s > .60$, $p_s < .001$) than was sociometric popularity ($r_s = .60$ to $.64$) and perceived ($r_s = .29$ to $.43$) popularity, $z_s > 2.88$, $p_s < .01$, with the exception that at Wave 1, the correlations of the two behaviors with admiration ($r_s = .71$ and $.72$) did not differ from those with sociometric popularity ($r_s = .68$), $z_s < 1.78$, ns .

In China, a different pattern emerged: Despite the fact that all three types of social status were associated with positive behavior, well-liked youth were nominated as the most prosocial and admired youth were nominated as the most academically engaged. Specifically, sociometric popularity was more strongly associated with prosocial behavior ($r_s = .79$ to $.86$) than perceived popularity and admiration ($r_s = .73$ to $.76$), $z_s > 3.26$, $p_s < .001$, with the exception that at Wave 3 the correlations did not differ ($r_s = .79$ and $.81$), $z = 1.27$, ns . Admiration was more strongly correlated with academic engagement ($r_s = .90$ to $.92$) than were sociometric popularity and perceived popularity ($r_s = .72$ to $.78$) at all three waves, $z_s > 11.17$, $p_s < .001$. Otherwise, there were no differences among the three types of social status, $z_s < 1.65$, ns .

Prospective analyses. The concurrent analyses revealed important variations in the behavioral profiles associated with social status in the United States and China. However, they

did not provide a window into the direction of effects. To address this gap, two-group bidirectional cross-lagged models in the context of SEM were built, with separate models for each of the two behaviors as well as each of the three types of social status yielding a total of six models. Behavior and social status were treated as manifest variables using the arcsined nomination proportion indexes. As shown in the a paths of Figure 1, youth's social status (e.g., perceived popularity) was predicted from their behavior (e.g., academic engagement) at the prior adjacent waves, such that each path represents a six-month lag (i.e., behaviors at Wave 1 predict social status at Wave 2 and behaviors at Wave 2 predict social status at Wave 3). Conversely, as shown in the c paths of Figure 1, youth's behavior was predicted from their social status at the prior adjacent waves (i.e., social status at Wave 1 predicts behaviors at Wave 2 and social status at Wave 2 predicts behaviors at Wave 3), permitting an examination of the reverse direction of effects. Auto-regression was taken into account by including the stability of each construct over time in the model with paths between adjacent waves as well as between the first and third wave. The concurrent associations between behavior and social status were included by allowing the constructs (Wave 1) or error variances (Wave 2 and 3) to correlate within each wave. In these analyses, I also ensure that gender did not drive the effects. To this end, we included gender (-1 = boys; 1 = girls) as a covariate which predicted each of the variables in the analysis.

I did not anticipate differences in the cross-lagged paths across the three waves (i.e., Wave 1 to 2 and Wave 2 to 3) given that the major change in the attributes characterizing social status, particularly perceived popularity, had likely already occurred for youth in the current research who had already made the transition to middle school when I started studying them. Preliminary analyses also suggested that there were not consistent differences over time—that is, between the Wave 1 to 2 path and the Wave 2 to 3 path. Thus, the two cross-lagged paths for

each direction of effects (e.g., the a paths in Figure 1) were forced to be equal to each other in the baseline models. Other than this constraint, other parameters were left unconstrained. To examine if the cross-lagged paths differ in the United States and China, the baseline models were compared to one set of constrained models in which the cross-lagged paths from behavior to social status were forced to be equal between the two countries (i.e., the a paths in Figure 1 were constrained between the two countries) and another set of constrained models in which the cross-lagged paths from social status to behavior at each time point were forced to be equal between the two countries (i.e., the b paths in Figure 1 were constrained between the two countries). Country differences were determined by chi-square differences between the baseline and constrained models. All baseline and constrained models fit the data adequately (see Table 3), $\chi^2_s < 67$, $ps < .001$, CFIs $> .99$, TLIs $> .94$, RMSEAs $< .09$. As in the concurrent analyses (see above), prosocial behavior and academic engagement were in general stronger predictors of heightened social status in China than the United States, including perceived popularity, but this varied with type of social status.

Overall, the pattern of findings yielded by the prospective analyses was similar to that yielded by the concurrent analyses. As shown in Table 3, prosocial behavior and academic engagement predicted heightened sociometric popularity over time: The more youth were viewed by their peers as prosocial and academically engaged, the more they were nominated as likeable 6 months later, taking into account their prior sociometric popularity. Comparison of the baseline models with the models constraining the cross-lags to be equal between the United States and China indicated that the strength of the pathways was stronger in China than the United States, $\Delta\chi^2_s > 11.90$, $p < .001$. In the reverse direction, youth's sociometric popularity predicted heightened prosocial behavior, but not academic engagement, over time, such that the

more youth were liked by their peers, the more prosocial nominations they received 6 months later, over and above their prior prosocial nominations, with the strength of the pathways not differing between the two countries, $\Delta\chi^2s < 3.02$, *ns*.

Youth's prosocial behavior predicted their *damped* perceived popularity 6 months later after controlling for youth's earlier perceived popularity in the United States; however, it was predictive of youth's heightened perceived popularity in China (see Table 3), $\Delta\chi^2 = 48.86$, $p < .001$. In the reverse direction, youth's perceived popularity predicted *dampened* academic engagement, but not prosocial behavior, over time taking into account youth's prior academic engagement in both countries, with no difference in the paths between the two, $\Delta\chi^2s < 3.30$, *ns*.

Youth's prosocial behavior and academic engagement predicted higher admiration over time after taking into account their prior admiration in both the United States and China. Comparison of the baseline and constrained models suggested that the effects of such paths were similar for prosocial behavior in the United States and China, $\Delta\chi^2 = .71$, *ns*, but stronger for academic engagement in China, $\Delta\chi^2 = 41.74$, $p < .001$. In the reverse direction, admiration predicted heightened prosocial behavior among youth over time taking into account their prior prosocial behavior, with no difference in the strength of the paths in the United States and China, $\Delta\chi^2 = .05$, *ns*. However, admiration only predicted heightened academic engagement over time in China, $\Delta\chi^2 = 4.09$, $p < .05$.

Supplemental Analyses

Youth may only be able to utilize visible attributes of their peers in making judgments about their social status judgments. Hence, prior research concerned with the characteristics that define social status has assessed youth's attributes almost exclusively via peer nominations (e.g., Cillessen & Mayeux, 2004; Cillessen & Borch, 2006; de Bruyn & Cillessen, 2006; French, Niu,

& Purwono, 2015; Graham et al., 1998; LaFontana & Cillessen, 2002; Logis et al., 2013; Niu et al., 2015; Rodkin et al., 2006; Rose et al., 2004; Taylor et al., 2016; for an exception, see Allen, Schach, Oudekerk, & Chango, 2014). However, youth in the current, as well as prior, research also reported on their peers' social status. As a consequence, youth nominations of their peers' attributes may be driven by their peers' social status. For example, youth may assume that prosocial behavior is frequent among sociometrically popular youth. To move beyond nominations of attributes, I also examined youth's self-reports of their antisocial behavior and academic engagement (for descriptions of the measures, see Appendix A; for the associations of the self-reports with peer nominations, see Appendix B).

Concurrent analyses. I conducted the concurrent and prospective analyses following the same procedure as presented above, with the exception that youth's self-reported antisocial behavior and academic engagement, instead of peer-nominated prosocial behavior and academic engagement, were used. As shown in Appendix C, in the concurrent analyses, antisocial behavior was not associated with sociometric or perceived popularity in the United States ($r_s = -.09$ to $.09$, ns) or China ($r_s = -.08$ to $.04$, ns), with the exception of a negative association with sociometric popularity in the United States at Wave 2 ($r = -.17$, $p < .001$). There was a negative association between antisocial behavior and admiration in both countries ($r_s = -.09$ to $-.20$, $ps < .001$). Academic engagement was positively associated with sociometric popularity in the United States at Waves 1 and 2 ($r_s = .14$ to $.15$, $ps < .01$) and in China at Wave 3 ($r = .12$, $p < .05$). It was also positively associated with perceived popularity in China at Waves 1 and 3 ($r_s = .10$ to $.11$, $ps < .05$). Positive associations between academic engagement and admiration were evident in both countries across three waves ($r_s = .14$ to $.21$, $ps < .01$). There were almost no differences in the size of the correlations in the United States and China, $z_s < 1.7$, ns . The one exception was that

antisocial behavior was more strongly associated with sociometric popularity in the United States than China at Wave 2, $z = -2.3$, $p < .05$.

Prospective analyses. As shown in Appendix D, in the prospective analyses, antisocial behavior did not predict the three types of social status over time after taking into account youth's prior social status, with the effects being similar in the United States and China, $\Delta\chi^2s < 4.25$, *ns*. In the reverse direction, social status also did not contribute to youth's heightened antisocial behavior over time, with the pathways not differing in the two countries, $\Delta\chi^2s < 1$, *ns*. Paralleling the results of the concurrent analyses, youth's self-reported academic engagement only predicted higher admiration, but not sociometric and perceived popularity over time, with the effects being similar in the two countries, $\Delta\chi^2s < 2.77$, *ns*. In the reverse direction, only admiration, but not sociometric and perceived popularity, predicted heightened academic engagement over time in both countries, $\Delta\chi^2s < 1.06$, *ns*.

2.4 Discussion

Youth often become more oriented toward their peers as they move into adolescence (for reviews, see Collins & Steinberg, 2006; Smetana et al., 2006). Hence, there has been much attention to elucidating how the peer system operates during this phase of development (e.g., Cillessen & Borch, 2006; Mayeux, 2014; Meijs et al., 2010). The large majority of this research has been conducted in the West, however. Despite much speculation that culture plays a role in shaping social status in the peer system (e.g., Brown, 2011; Chen & French, 2008), empirical attention has been sparse. The current research is the first to examine the characteristics predicting social status over time in both the United States and China, thereby permitting an important window into the role of culture. Social status—as reflected in sociometric popularity, perceived popularity, and admiration—was characterized by positive behavior (i.e., prosocial

behavior and academic engagement) in both the United States and China. In line with cultural values (e.g., interdependence), however, this was stronger in China (vs. the United States), with youth's positive behavior being a more robust predictor of their social status over time in China. This difference was the largest for perceived popularity, which had the least positive behavioral profile in the United States, but not China. Collectively, these findings are in line with the perspective that culture plays a role in shaping social status.

Overlap in Different Types of Social Status in the United States and China

A key strength of the current research was the examination of three central types of social status—sociometric popularity, perceived popularity, and admiration—in the United States and China. This allowed us to elucidate variation in the United States and China in the extent to which the three are distinct versus similar. Sociometric popularity was similarly associated with perceived popularity as well as admiration in the United States and China. Admiration, however, was more strongly associated with perceived popularity in China than the United States. The greater overlap between the two constructs among Chinese (vs. American) youth may be due to the fact that in China, but not the United States, youth often elect peers whom they admire as classroom leaders. These leaders share teachers' responsibilities of organizing and managing classroom activities. Hence, they are particularly salient in the classroom, which may lead to perceived popularity given that youth perceived as popular are often those who are highly visible in the peer system (Cillessen & Rose, 2005; Rodkin & Ryan, 2012). However, the greater overlap between admiration and perceived popularity in China (vs. the United States) may also reflect the more positive behavior profile of youth perceived as popular in China.

Characteristics Defining Social Status in the United States and China

Consistent with prior research (e.g., Graham et al., 1998; LaFontana & Cillessen, 2002; Li et al., 2012; Niu et al., 2015; Parkhurst & Hopmeyer, 1998; Véronneau et al., 2010; Wentzel & Caldwell, 1997), in both the United States and China, heightened social status was in general defined by positive behavioral profiles: The more youth were likable, perceived as popular, and admired, the more likely they were seen as prosocial and academically engaged by their peers. In line with the idea that culture shapes social status in the peer system, however, the characteristics of social status were generally more positive in China (vs. the United States). At each of the three waves of the current research, peer-nominated prosocial behavior and academic engagement were more strongly associated with all three types of social status in China than the United States. Over time, they were also stronger predictors of youth's social status over and above youth's prior social status in China.

Multiple aspects of Chinese culture may lead prosocial behavior and academic engagement to be stronger predictors of social status among Chinese (vs. American) youth. For one, the strong emphasis on interdependence and in-group harmony in collectivistic China (Markus & Kitayama, 1991; Oyserman et al., 2002; Triandis et al., 1988) may heighten encouragement of prosocial behavior during peer interaction (Chen, 2012; Chen & French, 2008; French et al., 2011). Moreover, high-status youth are also often leaders in Chinese classrooms who are expected to acquire their status via behaving in a morally responsible manner, including interacting with peers in a prosocial manner (Chen & Fahr, 2010; Niu et al., 2015). In addition, Confucianism may lead academic engagement to be seen as reflecting the moral value of perfecting one's character (Li, 2003).

Replicating prior research conducted in the United States (e.g., Cillessen & Mayeux, 2004; LaFontana & Cillessen, 2002; Parkhurst & Hopmeyer, 1998), the behavior profile for

perceived popularity was less positive than the profile for sociometric popularity, as well as admiration, in the United States. At each time point, American youth perceived as popular were less likely to be nominated as prosocial and academically engaged by their peers than were their well-liked and admired counterparts. However, this was not the case for Chinese youth. The prospective analyses painted a similar picture. Although prosocial behavior and academic engagement predicted sociometric popularity and admiration over time taking into account earlier social status, prosocial behavior predicted *dampened* perceived popularity and academic engagement did not predict perceived popularity over time in the United States. Both prosocial behavior and academic engagement were predictive of such popularity over time in China, however.

The difference in the two countries in the behavioral profiles of perceived popularity may in part be due to differences in how adolescence is viewed in the United States and China. Negative behavior is particularly defining of perceived popularity once children reach adolescence in the United States (e.g., Cillessen & Borch, 2006; Galván et al., 2011; Rose, Swenson, & Waller, 2004), presumably because such behavior represents a means of individuating from adults, which is often of much concern for youth during this phase of development in the West (Moffitt, 1993). In China, however, adolescence is viewed more as a time of fulfilling family responsibilities (Pomerantz et al., 2011; Qu et al., in press), which may require youth to abide by societal norms by being prosocial and academically engaged. As a consequence, they may not see youth who deviate from such behavior as popular.

The tendency for the behavioral profiles of youth perceived as popular to be similar to youth who are likable and admired, along with the similar overlap among the three types of social status, in China raises the possibility that Chinese youth may not differentiate among the

three types of social status to the same extent as do their American counterparts. However, this does not appear to be the case given that prosocial behavior and academic engagement differentially contributed to the three types of social status among Chinese youth. Prosocial behavior was more important to sociometric popularity (vs. perceived popularity and admiration) and academic engagement was more important to admiration (vs. perceived popularity and sociometric popularity), with the two behaviors being equally important to perceived popularity. In contrast, prosocial behavior and academic engagement did not differentially contribute to the three types of social status in the United States. These findings suggest that Chinese (vs. American) youth may take a more nuanced approach to social status in particularly valuing prosocial behavior for peers they like, but particularly valuing academic engagement for those they admire; perceived popularity may be driven by the combination of the two. However, it may also be that American youth do not distinguish prosocial behavior and academic engagement among their peers to the same extent as do their Chinese counterparts, as reflected in the stronger correlations between the two types of behavior in the United States ($r_s = .92$ to $.93$, see Appendix E) than China ($r_s = .82$ to $.85$), $z_s > 5.04$, $p_s < .001$.

The Role of Social Status in Behavior in the United States and China

Given theory and research suggesting that social status may contribute to youth's behavior over time (e.g., Allen et al., 2014; Véronneau et al., 2010; Welsh et al., 2001), I also investigated whether youth's social status predicts their subsequent behavior in the United States and China. Both sociometric popularity and admiration predicted youth's prosocial behavior based on peer nominations over time in the United States and China such that heightened social status foreshadowed heightened prosocial behavior adjusting for earlier prosocial behavior. Admiration also predicted peer-nominated academic engagement over time, but only in China.

These findings, which are consistent with those yielded by prior research conducted in the United States (e.g., Véronneau et al., 2010; Welsh et al., 2001) are in line with cumulative continuity theory that to maintain their social status, high status youth sustain and even intensify the behavior that initially brought them such status, thereby leading to more status consistent behavior over time (Allen et al., 2014) as well as the idea that heightened social status confers benefits (e.g., social support) that may foster positive behavior (Véronneau et al., 2010). A different pattern emerged for perceived popularity: Such social status was predictive of youth's dampened academic engagement over time in both countries. In the United States this tendency is in line with cumulative continuity theory, as well as prior research (Allen et al., 2014), given that the behavioral profile of perceived popularity is less positive than the other profiles. It is unclear why such social status puts Chinese youth at risk, however, given that the behavior profile of perceived popularity is just as positive as those for the other types of social status.

Caution should be taken when interpreting the results regarding the role of social status in behavior, however. For one, the effects of social status on subsequent behavior are quite small. In addition, youth's prosocial behavior and academic engagement were assessed with peer nominations. This technique was chosen because it captures youth's behavior that is observed by their peers, which is likely to be key in determining social status. However, peer nominations are likely to miss behavior that is not observable (e.g., when youth work hard at home but not school). Thus, it is unclear if the effects of social status on behavior over time reflect effects on actual behavior or just that which peers observe. Moreover, peer nominations are a measure of peers' perceptions, which may be driven by peers' social status—for example, youth assume that prosocial behavior is infrequent among peers perceived as popular.

Discrepancies Between Behavioral Nominations and Self-reports

In the current research, peer nominations of behavior appeared to be more strongly, broadly, and consistently predictive of social status than were self-reports. Specifically, as reflected in both the concurrent and prospective analyses, peer nominations of prosocial behavior served as powerful predictors of all three types of social status over time in both the United States and China. However, self-reported antisocial behavior did not predict youth's social status consistently in either country. Such a discrepancy may seem surprising at first blush, but as prior research suggests, antisocial behavior is not always the opposite of prosocial behavior (e.g., LaFontana & Cillessen, 2002; Niu et al., 2015; Veenstra, Lindenberg, Oldehinkel, & Winter, 2008), for example, some youth are low on both. In the current research, the antisocial and prosocial behavior were negatively correlated, but the size of the correlation was relatively small, particularly in China (see Appendix B). Youth were explicitly asked to nominate peers who exhibited prosocial behavior (e.g., help others) when making behavioral nominations. Such nominations may be derived in large from youth's observation of peers' prosocial behavior in public (e.g., classroom or school). However, some the antisocial measure items (e.g., "I drink alcohol") may largely capture what youth do in private (e.g., at home), which is not easily unobservable by their peers. In fact, prior research using peer nominations of (vs. self-reported) antisocial behavior has shown that it is a significant predictor of social status in both the United States and China (e.g., Cillessen & Borch, 2006; LaFontana & Cillessen, 2002; Niu et al., 2015a; Rose et al., 2004; Schwartz et al., 2010; Tseng et al., 2013). Moreover, early adolescents in both countries reported that they rarely engaged in antisocial behavior ($M_s = 1.37$ to 1.58 , $SD_s = .52$ to $.77$ in the United States, $M_s = 1.29$ to 1.39 , $SD_s = .39$ to $.64$ in China), limiting variance, which may have constrained power.

A similar pattern existed for peer-nominated versus self-reported academic engagement. Youth's self-reported academic engagement consistently predicted only admiration and it did so to a similar extent in the United States and China in both the concurrent and prospective analyses. Peer-nominated and self-reported academic engagement were not strongly correlated in the current research (see Appendix B). The former may reflect the visible behavior that also tends to be reputational (Cillessen, 2009), whereas the latter captures unnoticeable behavior (e.g., "Before starting my work, I try to decide what the most important parts are of what I must learn for school"). Thus, peer nominations (vs. self-reports) of academic engagement may be more functional in social status nominations because they reflect the observable attributes utilized by youth when making social status judgements. Reflecting these issues of observability of behavior, the research to date on the characteristics predictive of social status in the peers system has used reputational measures—mainly peer nominations—rather than self-reports (e.g., Cillessen & Mayeux, 2004; Cillessen & Borch, 2006; de Bruyn & Cillessen, 2006; French, Niu, & Purwono, 2015; Graham et al., 1998; LaFontana & Cillessen, 2002; Logis et al., 2013; Niu et al., 2015; Rodkin et al., 2006; Rose et al., 2004; Taylor et al., 2016).

Limitations and Future Directions

The current research has several limitations that point to directions for future research. First, using peer nominations, I examined the role of two important characteristics—prosocial behavior and academic engagement—in predicting youth's social status in the early adolescent peer system in the United States and China. I chose these two characteristics because they have been identified as central for all three types of social status (e.g., de Bruyn & Cillessen, 2006; Graham et al., 1998; LaFontana & Cillessen, 2002; Parkhurst & Hopmeyer, 1998; Schwartz, Gorman, Nakamoto, & McKay, 2006; Veronneau & Dishion, 2011). However, the research to

date also suggests that youth's social status, particularly perceived popularity, is associated with other characteristics, such as appearance, sociability, and athletic ability (e.g., French et al., 2015; LaFontana & Cillessen, 2002; Niu et al., 2015). Future research should include peer nominations of a wider range of characteristics to examine their contribution to youth's social status in the United States and China.

This may be of particular importance when it comes to negative characteristics, such as antisocial behavior and academic disengagement, which I did not examine using peer nominations. School personnel also felt that it would be harmful for youth to make peer nominations of negative behavior, as well as social status (e.g., who is disliked). However, the findings for American youth are in line with those yielded by prior research in which such negative nominations were made: Most notably, youth perceived as popular exhibit more negative characteristics than do well-liked youth (e.g., Cillessen & Borch, 2006; Parkhurst & Hopmeyer, 1998; Schwartz et al., 2006). The findings with Chinese youth using peer nominations of negative behavior and social status are inconsistent. Niu and colleagues (2015), for example, reported a positive association between perceived popularity and aggression during adolescence (for a similar finding, see Schwartz et al., 2010), which was stronger than that between aggression and sociometric popularity; however, perceived popularity (vs. sociometric popularity) was also more strongly associated with positive characteristics (e.g., prosocial behavior). In contrast, in Tseng and colleagues' (2013) study of elementary school youth, perceived popularity was negatively associated with aggression (for a similar finding, see Li et al., 2012), with this characteristic predicting *dampened* perceived popularity over time.

Second, although I made every effort to recruit comparable samples from the United States and China, our samples do not fully represent the diversity within each country. For

example, our American sample consisted of mainly European American youth, but social status behavior profiles vary with ethnicity (e.g., Meisinger, Blake, Lease, Palardy, & Olejnik, 2007). In addition, although the structure of middle schools is relatively homogeneous in China, this is not the case in the United States. Hence, the schools attended by the American sample do not fully reflect the variability in the structural features of middle schools in the United States. The behavioral profiles of high-status youth are likely to be influenced by youth's school experience (Ryan, 2014). For example, youth in kindergarten through eighth grade schools do not experience much disruption in their peer relations compared to their counterparts who make the transition from elementary to middle school. Hence, there may be stability in social status which may lead the behavioral profiles of high-status youth to be more positive in kindergarten through eighth grade schools than in middle schools (Ryan, 2014). Moreover, many middle schools in the United States are larger than those included in the current research, which may contribute to the characteristics of social status. In China, there is a substantial urban-rural divide. Rural areas are not as modernized, developed, and Westernized as urban areas. Although our Chinese sample was not from a large metropolitan area, it was from an economically developed urban area in which there is exposure to Western ideas, leading to more similarity than in other areas of China with the United States. In addition, I did not directly measure youth's endorsement of independent and interdependent values in the two countries. Although differences between the United States and China in such values are evident, there is substantial variability within each culture (Oyserman et al., 2002). Future research may include relevant measures to identify if differences in American and Chinese youth's cultural values account for differences in the peers they see as high in social status.

Third, the research revealed variation in the United States and China in the characteristics predicting youth's social status during early adolescence, with the largest variation in perceived popularity. This may be in part due to the fact that early adolescence is a time when youth perceived as popular exhibit relatively negative behavioral profiles in the United States (for reviews, see Cillessen & Rose, 2005; Rodkin & Ryan, 2012). However, in the elementary school years, the profiles of such youth are rather positive (e.g., LaFontana & Cillessen, 2002a). It will be important to examine the characteristics of social status, particularly perceived popularity, before and after the early adolescent years in the United States and China to identify whether culture shapes social status in the peer system at these phases of development as well. In addition, translating "popularity" into Chinese is challenging given that there is not a Chinese term that perfectly corresponds to the term in English. Although I employed the Chinese phrases which were close to the concept of perceived popularity in English, such translations may still be imperfect and may not fully capture the American meaning of perceived popularity. As Niu and colleagues (2015) advocate, it is important for future research to use a variety of Chinese terms or develop multi-item constructs.

Conclusions

The current research makes inroads into understanding how culture shapes social status in the peer system during early adolescence. Although there is much similarity in the characteristics of social status (i.e., sociometric popularity, perceived popularity, and admiration) in the early adolescent peer system in the United States and China, there are also important differences that reflect the distinct cultural values of the two countries. Peer nominations of prosocial behavior and academic engagement were not only more strongly associated with all three types of social status at each time point in China (vs. the United States), but they were also stronger predictors

of youth's heightened social status over time in China. Across all three types of social status, this difference was most evident for youth perceived as popular, who had the least positive behavioral nomination profiles in the United States, but not China. These findings suggest that cultural values may play an important role in shaping the characteristics of youth's social status during early adolescence.

CHAPTER 3: STUDY 2

Early Adolescent Social Status and Academic Engagement: Selection and Influence Effects in the United States and China

3.1 Introduction

Youth's academic engagement (e.g., monitoring of understanding, effort on schoolwork, and interest in school) plays an important role in their adjustment (for a review, see Finn & Zimmer, 2012). It not only predicts youth's achievement in school over time (e.g., Dotterer & Lowe, 2011; Li & Lerner, 2011; Reyes et al., 2012; Wang & Pomerantz, 2009), but also their emotional and social functioning (e.g., Lewis & Huebner, 2011; Li & Lerner, 2011). Key to fostering youth's academic engagement is identifying what contributes to it. There is much evidence that parents and teachers are important (e.g., Hughes & Kwok, 2007; Simons-Morton, 2009; Strati et al., 2016; Ming-te Wang & Sheikh-Khalil, 2014; for reviews, see Christenson & Havsy, 2004; Pomerantz, Kim, & Cheung, 2012), with some evidence that peers are as well (e.g., Simons-Morton, 2009; Veronneau & Dishion, 2011; Véronneau, Vitaro, Brendgen, Dishion, & Tremblay, 2010; for reviews, see Ryan, 2000; Wentzel, 2009). However, the research to date on peers has focused primarily on youth's friends and peer groups (e.g., Berndt & Keefe, 1995; Kindermann, 2007; Ryan, 2001; Shin & Ryan, 2014; Veronneau & Dishion, 2011; Véronneau et al., 2010; for a review, see Juvonen, Espinoza, & Knifsend, 2012).

Peer relationships operate in multiple layers. In addition to a small and relatively intimate group of friends, youth are also embedded within a broader peer system that consists primarily of the peers with whom they interact on a regular basis at school (e.g., those on their middle school team). In the peer system, youth with heightened social status, such as those who are viewed as popular or cool, may play a crucial role in establishing norms (Cilleseen, 2005; Rodkin & Ryan,

2012). As such, they may be important in socializing their peers' academic engagement. Indeed, youth with high social status appear to influence other dimensions of their peers' adjustment, particularly aggression (e.g., Cohen & Prinstein, 2006). The central goal of the current research was to examine whether the academic engagement of peers whom youth view as high in social status contributes to youth's academic engagement over time during early adolescence—a time of heightened peer influence (for reviews, see Collins & Laursen, 2004; Sandstrom, 2011).

Social Status in the Peer System

Theory and research concerned with youth's social status in the peer system have generally focused on three separate, albeit related, forms of social status. *Sociometric popularity* reflects youth's acceptance by others in the peer system—also viewed as social preference (for a review, see Cillessen & Rose, 2005). It is typically assessed by peer nominations or ratings, probing how much youth like their classmates (e.g., De Laet et al., 2014; Logis, Rodkin, Gest, & Ahn, 2013; Parker & Asher, 1987; Wentzel & Caldwell, 1997). Measures of acceptance (e.g., “Rate how much you would like to be in school activities with this person?”) and peer preference (e.g., “Who are the kids in your grade that you personally like the best?”) are considered indicators of sociometric popularity (for a review, see Cillessen, 2009). *Perceived popularity*, in contrast, refers to youth's social dominance, visibility, prestige, and ability to control resources in the peer group (for a review, see Pellegrini, Roseth, Ryzin, & Solberg, 2009). It is generally evaluated with youth's nominations of peers they see as “popular” or “cool” (e.g., Rodkin et al., 2000; Rodkin et al., 2006; Rose et al., 2004). A third, and less studied, dimension of social status is the *admiration and respect* youth receive from peers. A few scholars (Duong et al., 2014; Graham et al., 1998; Taylor & Graham, 2007) have made the case that this type of social status

reflects what is valuable and desirable in the peer culture. This form of social status has been assessed with youth's nominations of classmates whom they admire, respect, or want to be like.

High-status Peers as Socialization Agents

Youth with high social status have been argued to play a significant role in socializing their peers (Cillessen & Rose, 2005; Cohen & Prinstein, 2006; Dijkstra, Lindenberg, & Veenstra, 2008). Such youth are highly visible and powerful in the peer system (for a review, Cillessen & Rose, 2005) and often times interconnected (Logis et al., 2013). Hence, they may be central in establishing norms for behavior to which their peers conform (Rodkin & Ryan, 2012). Social comparison and social learning perspectives (Bandura, 1977; Goethals & Darley, 1977) suggest that youth may evaluate the appropriateness of their behavior using their high social status peers' behavior as a yardstick, leading youth to adjust their behavior to that of their high social status peers. Youth may also look up to their socially successful peers, intentionally imitating their behavior to promote their own social status in the peer hierarchy as well as to avoid rejection by their peers (Goethals & Darley, 1977; Leary & Baumeister, 2000). Given that academic engagement is easily observable among youth, youth may model the engagement of high-status peers.

Although the role of high status peers in youth's academic engagement has not been directly examined, there is evidence for the role of such peers, particularly those perceived as popular, in youth's aggression (e.g., Dijkstra, Kuyper, van der Werf, Buunk, & van der Zee, 2008; Witvliet et al., 2010). For example, Rodkin and colleagues (2006) found that the more aggressive youth were seen as "cool", the more overall aggression there was among youth in the classroom; conversely, the more prosocial youth were seen as "cool", the less overall aggression there was. Other research suggests that norms around aggression defined by youth perceived as

popular contribute to the role of aggression in peer relations in the classroom (e.g., Dijkstra & Gest, 2015). For instance, Laninga-Wijnen and colleagues (in press) found that only in classrooms where aggressive norms set up by popular youth were salient (i.e., a strong association existed between perceived popularity and aggression), youth formed friendships based on similarity in aggression and became more like their friends over time.

Experimental research more directly demonstrates that high status peers act as socialization agents of aggression among youth. Cohen and Prinstein (2006) had high school males with moderate social status—that is, average sociometric and perceived popularity—join in an electronic “chatroom” and interact with virtual male peers whose social status was manipulated. In this context, youth were exposed to aggressive opinions. In the “high social-status” condition, youth were lead to believe the opinions were held by three popular peers (i.e., peers with high sociometric and perceived popularity based on their classmates’ nominations); in the “low social-status” condition, youth were lead to believe that the opinions were held by three unpopular peers (i.e., peers with low sociometric and perceived popularity based on their classmates’ nominations). Youth changed their opinions to be more in line with those of their popular than their unpopular peers. However, it is unclear if this was driven by sociometric or perceived popularity.

It may be that peer social status contributes to youth’s academic engagement as well. In line with this possibility, Galván, Spatzier, and Juvonen (2011) found that as youth moved from elementary to middle school, youth seen as “cool” by their peers were less academically engaged. This trend was paralleled by a decline from elementary to middle school in what youth saw as normative in terms of academic engagement among their peers. Based on these findings, Galvan and colleagues (2011) speculated that the norms of academic engagement set by youth

seen as popular shape their peers' engagement, leading to the decline in engagement typical of American youth as they move to middle school (for a review, see Wigfield, Eccles, Schiefele, Roeser, & DavisKean, 2006). However, research is necessary to identify if indeed peer social status contributes to youth's academic engagement, with attention to whether only perceived popularity, which has been the focus of the bulk of the research to date, matters, or whether other forms of social status (i.e., sociometric popularity and admiration) are also important.

Perceptions of Peer Social Status

Although social status operates at multiple levels in the peer system, it is most often operationalized at the classroom or school level based on the aggregate of peers' nominations for the entire classroom or school (e.g., youth's perceived popularity is determined by the proportion of nominations youth receive from their peers in their class or grade; e.g., Cohen & Prinstein, 2006; Rodkin et al., 2006). Social status at this level is likely to be powerful in setting norms, but its influence on individual youth may be limited, particularly if there is not wide spread agreement about social status (Paluck, Shepherd, & Aronow, 2016). Indeed, Cialdini and colleagues (Cialdini, Reno, & Kallgren, 1990; Kallgren, Reno, & Cialdini, 2000) suggest that the influence of social norms may be limited only to those who actually view such norms as salient and personally relevant.

Social status can also be operationalized at the individual level through youth's own perceptions of their peers' social status—that is, who individual youth view as possessing high social status. Social status at this level may be particularly meaningful to youth given that it is personally relevant. As a consequence, it may constitute a significant source of influence on youth's behavior. Although social status at the individual level has not been examined, research using individual youth's friendship nominations finds that youth's friends and peer groups play

an important role in their academic engagement and achievement (e.g., Berndt & Keefe, 1995; Flashman, 2012; Shin & Ryan, 2014; Wentzel, Barry, & Caldwell, 2004; for reviews, see Brechwald & Prinstein, 2011; Ryan, 2000).

Youth's own characteristics may shape their perceptions of their peers' social status. Cognitive dissonance theory (Festinger, 1957) posits that humans have an inner drive to hold their cognition and behavior in harmony to avoid discomfort. In a related vein, similarity-attraction theory suggests that individuals often find similar others attractive (Byrne, 1971). Hence, youth may perceive peers whose academic engagement is similar to their own as high in social status to avoid discomfort. In line with this idea, a wealth of evidence indicates that youth tend to choose friends with academic characteristics that are similar to their own (e.g., Flashman, 2012; Kindermann, 2007; Shin & Ryan, 2014; Wentzel, Barry, & Caldwell, 2004). It is possible that the selection process may also be evident for sociometric popularity given that youth typically nominate their friends as likable (Kwon & Lease, 2014). However, such a selection effect may not exist for perceived popularity given that it may be defined by societal definitions of what is cool among teenagers (e.g., via the media). This may also be the case for admired peers; however, youth may admire peers who share their characteristics given that youth may value such characteristics (Graham et al., 1998; Taylor & Graham, 2007).

Beyond the West

Psychological research to date has been conducted predominantly in the West, particularly the United States (Arnett, 2008; Henrich, Heine, & Norenzayan, 2010). The generalizability of this research is unclear given that Western culture may be characterized by a unique set of norms and values not shared by many other cultures (Oyserman et al., 2002; Triandis et al., 1988). Given that peers have been suggested to be major agents of cultural

transmission and change (Chen, 2012), identifying their role in the socialization process beyond the West is important. Unfortunately, to date, there has been only scant attention to social status in the peer system outside the West, with the bulk of the research focusing on what defines social status, mainly in East Asian countries such as China (e.g., Niu et al., 2015; Schwartz et al., 2010; Tseng, Banny, Kawabata, Crick, & Gau, 2013). Taken as a whole, this emerging line of research suggests that culture shapes the characteristics that define social status among youth. For example, academic engagement appears to be more important to high status (e.g., perceived popularity) in the peer system in China than the United States (e.g., Li, Xie, & Shi, 2012; Zhang et al., 2016).

Given differences in the characteristics that define social status in the United States and China, a key question is whether the role of social status is similar in the two countries. High-status youth may play an equally important role in socializing their peers' behavior in the two countries. Despite differences in the characteristics defining social status in the peer system, such status may reflect youth's dominance (for a review, see Pellegrini et al., 2011), which may be universally influential. This may be intensified in China, however, given the importance placed on the in-group (e.g., peers in the classroom) in collectivistic cultures such as China (Oyserman et al., 2002; Triandis et al., 1988); given that China is also a vertical culture (Triandis, 2004; Triandis et al., 1988), social status may be particularly powerful. Alternatively, high social status peers may be less influential in China (vs. the United States) at least during adolescence because adults (e.g., parents and teachers) limit youth's exposure to peers at this time (Chen & Chang, 2012).

Overview of the Current Research

The central goal of the current research was to evaluate whether peers who youth see as high in social status play a role in youth's academic engagement over time. I focused on the early adolescent years given that this is a time of heightened peer influence (for reviews, see Collins & Laursen, 2004; Sandstrom, 2011). The few studies examining the socialization role of high-status youth have been conducted in the West. The current research investigated the phenomenon in not only the United States, but also Mainland China. The research was characterized by two additional innovations. First, it is the first to evaluate the role of peer social status in youth's *academic engagement* as the research to date has focused almost exclusively on the role of peer social status in youth's aggression. Second, the research to date has either focused solely on perceived popularity (e.g., Dijkstra, Lindenberg, & Veenstra, 2008; Rodkin et al., 2006) or has not distinguished it from sociometric popularity (e.g., Cohen & Prinstein, 2006), with no focus on admiration. I explored the role of not only perceived popularity, but also sociometric popularity and admiration in youth's academic engagement.

I examined youth as they began middle school in the fall of seventh grade (Wave 1) and then at the end of this year of school in the spring (Wave 2) in the United States and China. (Wave 3 was not included because the pool of peers from which youth made nominations changed once they were in eighth grade in some schools, which the analytic approach I took cannot handle.) At each wave, youth not only nominated peers who they viewed as high in social status, but also reported on their own academic engagement. The longitudinal design allowed for the examination of the *influence process* (i.e., youth's academic engagement becomes more similar over time to that of the peers they nominate as high in social status) as well as the *selection process* (i.e., youth nominate high-status peers with academic engagement similar to

their own). To disentangle the two processes, stochastic actor-based modeling was used. This approach builds social networks based on individual youth's nominations of their peers' social status (e.g., sociometric popularity), while integrating information about individual youth's behavior (i.e., academic engagement) at multiple time points. It simultaneously estimates network structural features (e.g., density, see Appendix F), influence, and selection processes (Snijders, van de Bunt, & Steglich, 2010; Steglich, Snijders, & Pearson, 2010). In recent years, stochastic actor-based modelling has been widely used in research in social networks such as friendships (e.g., Flashman, 2012; Franken et al., 2015; Knecht, Snijders, Baerveldt, Steglich, & Raub, 2010; Shin & Ryan, 2014; Weerman, 2011, 2011) and prosocial relationships (e.g., Rijsewijk, Dijkstra, Pattiselanno, & Steglich, 2016).

3.2 Method

Participants

Participants were 934 youth in the United States and China. In the United States, there were 420 youth (mean age = 12.75 years in the fall of seventh grade; 212 boys) from four public middle schools in the Midwest which serve primarily working- to middle-class families. Three schools were in small urban areas and one was in a rural area. In the small urban areas, 17% to 33% of the population over the age of 25 had at least a 4-year college degree, with median family gross incomes between \$27,161 and \$58,451. In the rural area, only 6% of the population over the age of 25 had a 4-year college degree or higher, with the median family gross income being \$34,426. The schools differed in their levels of achievement: Two schools achieved above the state average, one achieved at the state average, and one achieved below the state average. Reflecting the ethnic composition of the areas from which youth were recruited, they were primarily European American (95%), with 2% African American, and 3% Hispanic.

In China, participants were 514 youth (mean age = 12.60 years in the fall of seventh grade; 276 boys) from three public middle schools serving a major urban area in Shandong province, the northeast district of China. As the birthplace to Confucius, Shandong province is considered the cradle of Chinese civilization. It is relatively traditional, with far less exposure to Western culture than large metropolitan areas such as Beijing and Shanghai. The annual discretionary income per capita (i.e., income after deduction of taxes and other mandatory charges) was ¥32,570 (Jinan Statistical Year Book, 2013), with 19% of the population over the age of six having at least a 4-year college degree. Two of the schools were located at the outskirts of the urban area where the population densities, educational attainment, and economic levels are below that for the area as a whole; one school was in the center of the area where the population density, educational attainment, and economic development levels were above that for the area as a whole. The schools differed in their levels of achievement, with one high-achieving school, one average-achieving school, and one low-achieving school. Reflecting the ethnic composition of the areas from which youth were recruited, over 98% of youth were of the *Han* ethnicity, which is the majority ethnicity in Mainland China.

Procedure

Data were collected from youth in the United States and China in the fall (Wave 1) and spring (Wave 2) of seventh grade. In both countries, youth made the transition to middle school in seventh grade. Trained native research assistants administered surveys to youth in their native language in the classroom during two 45-min sessions at each wave. Youth completed the surveys on their own; they were given a sheet of paper to cover their answers to ensure privacy. Research assistants also emphasized that youth should not share their answers with their peers; particular note of this point was made when youth completed the peer nominations. An opt-out

consent procedure was used in which parents received a letter describing what was involved in participating in the study. If they did not want their children to participate, they could contact the school; otherwise, youth took part in the research unless they themselves chose not to do so. Participation rates were 98% in the United States and 97% in China. Attrition from Wave 1 to 2 was 1.5% (2% in the United States and 1% in China). Youth with no missing data at Wave 2 did not differ from those with missing data at Wave 2 on any of the variables at Wave 1 examined in this report.

Measures

The measures were initially developed in English. Standard translation and back-translation procedures (Brislin, 1980) were employed with repeated discussion among a group of English and Chinese experts to modify the wording of the items to ensure equivalence in meaning between the English and Chinese versions (Erkut, 2010). Linguistic factors were taken into account to ensure that the measures were naturally comprehensible to youth in both countries.

Social status. Youth made social status nominations using a list of the names of the students in the group (e.g., grade, team, or class) with whom they shared classes throughout the day (for similar methods, see Cillessen & Borch, 2006; Rodkin, 2006). Groups ranged from 75 to 90 students in the United States and 48 to 62 students in China. In American middle schools, youth travel from teacher to teacher with a different mixture of 20 to 25 students from their group in each class. In Chinese middle schools, youth in the same group stay together for every class, with different teachers coming to their classroom. To aid youth's search in making nominations for each type of social status (see below), the names of youth in their group were arranged alphabetically and by gender. Consistent with peer nomination methods used in prior

research (e.g., LaFontana & Cillessen, 2002; Logis, Rodkin, Gest, & Ahn, 2013), youth were told to nominate as many or as few peers as they desired.

Three types of social status were assessed. At each wave, youth checked the names of peers (1) with *sociometric popularity*, that is, peers whom they personally liked the most; (2) with *perceived popularity*, that is, peers whom they viewed as popular; and (3) whom they *admired*, respected, and wanted to be like. On average, American youth nominated 10 (i.e., 12% of the peers on their team or grade) likable peers, 20 (i.e., 24% of the peers on their team or grade) popular peers, and 10 (i.e., 12% of the peers on their team or grade) admirable peers. Chinese youth nominated 14 (i.e., 25% of the peers in their classroom) likable peers, 8 (i.e., 14% of the peers in their classroom) popular peers, and 7 (i.e., 12% of the peers in their classroom) admirable peers (for the averages of nominations across the two countries, see the average outdegree in Table 4; for the associations between the three types of social status, see Appendix G).

Academic engagement. At each wave, youth reported on their academic engagement. To ensure a comprehensive assessment of youth's engagement, the three central dimensions (for a review, see Wang & Degol, 2014)—cognitive, behavioral, and affective engagement—were all included in the 32-item measure administered. Youth's cognitive engagement was assessed with 12 items were from the meta-cognitive scales of Dowson and McInerney's (2004) measure of self-regulated learning (e.g., "I try to make sure that I understand what I am learning."). Youth's behavioral (e.g., "I try hard to do well in school.") and affective (e.g., "When I work on something in class, I feel interested.") engagement were assessed with the 20 items designed for this purpose by Skinner, Kindermann, and Furrer (2009). Youth indicated the extent to which each was true of them (1 = *not at all true*, 5 = *very true*).

Although cognitive, affective, and behavioral engagement are considered distinct, albeit related, dimensions of engagement (for a review, see Wang & Degol, 2014), the three were substantially associated at each of the two waves ($r_s = .48$ to $.55$ in the United States and $.55$ to $.61$ in China). Hence, the items were combined ($\alpha_s = .93$ and $.94$ in the United States and $.94$ and $.95$ in China at Wave 1 and 2). Two-group confirmatory factor analyses were conducted to examine the metric invariance of the engagement measures over time and between the United States and China in the context of structural equation modeling (SEM). Academic engagement was treated as the latent variable, represented by three indicators (i.e., cognitive, behavioral, and affective engagement). The unconstrained model in which all the parameters were freely estimated between countries and across waves was compared to a constrained model in which the factor loadings of the indicators of the academic engagement construct were forced to be equal between countries and across waves. Both the unconstrained and constrained models fit the data well, TLIs $> .99$, CFIs $> .99$, RMSEAs $< .05$. Based on Chen's (2007) criteria for invariance that the decrease in TLIs from the unconstrained model to the constrained and the increases in RMSEA be no more than $.01$, the academic engagement measures possess metric invariance over time and between the two countries. Because the analytic strategy (see below) requires that dependent variables be ordinal categorical, the mean of the 32 academic engagement items was recoded into eight equally populated groups across the United States and China (for a similar approach, see Laninga-Wijnen et al., in press).

Analytic Strategy

Longitudinal social network analyses (also called stochastic actor-based models) were conducted for each type of social-status network (i.e., sociometric popularity, perceived popularity, and admiration) using the Simulation Investigation for Empirical Network Analyses (RSIENA) software program (RSIENA version 1.1-289 in R 3.3.0). The RSIENA program

examines the coevolution of social network (e.g., perceived popularity network) and behavior (i.e., academic engagement) in a single group (i.e., team or grade in the United States and classroom in China). It estimates both the selection (i.e., youth nominate high-status peers with academic engagement similar to their own) and influence (i.e., youth's school engagement becomes more similar over time to that of their high-status peers) processes, while controlling for structural network effects (e.g., density). For a more detailed and mathematical explanation of longitudinal social network analyses, see Snijders, van de Bunt, and Steglich (2010).

Three sets of analyses using SIENA were conducted for each type of social status (i.e., sociometric popularity, perceived popularity, and admiration). The first set provided descriptive statistics for the networks for each type of social status at Wave 1 and 2 separately as well as changes in the networks from Wave 1 to 2 (see Table 4). These preliminary analyses were followed by the core analyses, which evaluated the structural features of the networks as well as the selection and influence processes regarding academic engagement for each type of social status in both the United States and China. The third set of analyses evaluated whether the social-status network effects as well as the selection and influence processes differed in the United States and China.

In the second and third sets of analyses, five endogenous social-status network effects were examined: (1) density, (2) reciprocity, (3) transitivity, (4) three-cycles, and (5) balance (for an overview and graphical representation, see Appendix F). These structural features have been widely evaluated in prior research on different kinds of social networks (e.g., Franken et al., 2015; Knecht, Snijders, Baerveldt, Steglich, & Raub, 2010; Logis et al., 2013; Rijsewijk et al., 2016; Shin & Ryan, 2014; Weerman, 2011). In the social-status networks, *actor* refers to individual youth and *outgoing ties* refer to the social status nominations they make. *Density*

captures the overall tendency for actors (i.e., youth) to create social status ties (i.e., making social status nominations); a negative parameter is found in most social networks, given that actors typically do not form outgoing ties arbitrarily (Snijders et al., 2010). *Reciprocity* describes the tendency for dyads within social-status networks to reciprocate a relationship; a positive parameter suggests that the social network is characterized by reciprocal relationships between dyads, which may be embedded within small peer groups. *Transitive group* describes the tendency for actors to formulate triadic patterns of relationships within social-status networks (e.g., actor A nominates actors B and C as having high social status, B also nominates C as having high social status). A positive parameter indicates that the social network is characterized by transitive groups, which are hierarchical in nature given that some actors receive more social status nominations than others (Snijders et al., 2010). In contrast, *three-cycle* groups are egalitarian in nature. This parameter describes the tendency for actors to receive similar number of social status nominations. If the estimate is positive for transitive group but negative for three-cycles, it implies that social network is hierarchical (Snijders et al., 2010). *Balance* represents to what extent actors generate outgoing ties to other actors who make the same choices, with a positive estimate indicating that actors are likely to nominate peers who share the same set of outgoing ties as them (Snijders et al., 2010). Including these five structural network parameters not only reveals the structural features of social-status networks, but also reduces the chance of overestimating selection and influence effects (Snijders et al., 2010). For example, two youth who share similar characteristics may nominate each other as likable. Their nominations may be motivated by their shared characteristics (i.e., academic engagement), but they may also be due to the fact that they both like another peer who shares their characteristics; such a possibility is taken into account by the group formation parameter (i.e., transitivity).

The main focus of the analyses was on the selection and influence processes. In the selection analyses, gender (0 = boys, 1 = girls) and academic engagement at Waves 1 and 2 were included as individual-level covariates. Three different parameters were estimated for these covariates. The *ego* parameter refers to the effect of the nominator's characteristics (e.g., academic engagement) on making social status nominations. The *alter* parameter represents the effect of nominee's characteristics on receiving social status nominations. The *similarity* parameter represents the selection process, which describes the tendency for youth to nominate peers with similar characteristics. For example, a positive ego effect indicates that youth who are more (vs. less) academically engaged tend to make more social status nominations. A positive alter effect suggests that youth who are more (vs. less) academically engaged are more likely to receive social status nominations. A positive similarity effect reflects that youth tend to nominate those who report similar levels of academic engagement.

In the influence analyses, individual youth's academic engagement is predicted from the network ties within each group (i.e., the team or grade in the United States and classroom in China). The *linear and quadratic shape effects*, describe the overall tendency toward a high or low value for academic engagement over time. A positive parameter estimate indicates that academic engagement increases over time. The *similarity* parameter represents the influence process, which describes whether youth become more similar in terms of academic engagement to the peers they nominate as high in social status over time.

3.3 Results

Descriptive Statistics of Social-status Networks

As shown in Table 4, the social-status networks were characterized by low density at both Wave 1 and 2: The mean density index was 0.20 for sociometric popularity, 0.18 to 0.19 for

perceived popularity, and 0.13 for admiration. Across all three types of social-status networks, reciprocity was quite low at Wave 1 given that only 11% to 25% of the social status nominations were reciprocated. However, at Wave 2, around 50% of the nominations were reciprocated, indicating an increase over time in mutual nominations. The social-status networks were characterized by high transitivity in that over 47% of the social status nominations at both waves were part of a transitive.

The three types of social-status networks were largely complete given that only a small number of participants ($N = 15$) left the networks from Wave 1 to 2 (see Table 4). The Jaccard index denotes the amount of stability in the social networks over time (see Appendix F), which should be greater than 0.30 to permit complex selection dynamic modeling in SIENA with adequate statistical power (Veenstra & Steglich, 2012). The Jaccard index ranged from 0.31 to 0.35 across the three types of social-status networks. The Hamming distance, which indicates changes in social status nominations between different time points (Veenstra & Steglich, 2012), ranged from 533.07 to 700.64 across the three types of social-status networks.

Social-status Networks and Academic Engagement

The goal of this set of analyses was to evaluate the structural features of social-status networks as well as the selection and influence processes. Since the RSIENA analyses were conducted by group—that is, by schools or teams in the United States (i.e., a total of 5 groups) and classrooms in China (i.e., a total of 9 groups)—the different parameter estimates from each group were combined using meta-analyses.

Network structural features. As shown in Table 5, consistent with expectations, the density parameters were negative and significant for the three types of social status, $bs < -1.57$, $zs < -11.17$, $ps < .001$, indicating that youth did not randomly nominate classmates as high in

social status. The estimates of reciprocity were positive and significant for sociometric popularity and admiration, $bs > .23$, $zs > 3.73$, $ps < .001$: Youth tended to reciprocate sociometric popularity and admiration, that is, if A nominated B as likable or admirable, B would also nominate A as likable or admirable. In contrast, perceived popularity nominations were not characterized by reciprocity, $b = -.03$, $z = -.44$, ns . As expected, transitivity parameters were positive, $bs > .15$, $zs > 10.01$, $ps < .001$, whereas three-cycle estimates were negative for the three types of social status, $bs < -.11$, $zs < -5.19$, $ps < .001$, indicating that all three types of social-status networks are hierarchical in nature. The balance effect was positive and significant for perceived popularity and admiration, $bs > .01$, $zs > 2.16$, $ps < .05$, indicating that youth tended to nominate perceived popular and admirable peers who shared common nominations with them. In contrast, the balance effect was not evident for sociometric popularity, $b = .00$, $z = .04$, $p = .97$. Positive same sex effects were obtained for all types of social status, $bs > .23$, $zs > 4.94$, $ps < .001$, reflecting the tendency for youth to nominate high-status peers of the same gender. Taken together, these findings suggest that youth were deliberate in making social status nominations, the social-status networks were characterized by hierarchy and there was a preference for same-gender nominations of social status.

Selection process. There was a general tendency for academically engaged youth to be nominated as popular and admired as reflected in positive and significant alter effect for perceived popularity and admiration (see Table 5), $bs > .02$, $zs > 4.48$, $ps < .001$. However, such an alter effect was not evident for sociometric popularity, $b = .02$, $z = 1.71$, $p = .09$. There was no ego effects, $bs < .05$, $zs < 1.68$, $ps > .09$, indicating that youth's own academic engagement did not have an effect on the number of social status nominations they made.

The estimates of similarity represent the selection process, that is, whether youth nominated peers of similar levels of academic engagement as high in social status. Consistent with our predictions, the estimates for similarity were positive and significant for sociometric popularity and admiration, $bs > .38$, $zs > 4.95$, $ps < .001$, but not perceived popularity, $b = .03$, $z = .23$, $p = .82$, suggesting that youth tended to nominate likable and admirable peers, but not perceived popular peers, with similar academic engagement.

The influence (socialization) process. As shown in Table 5, the quadratic effects for academic engagement were positive and significant, $bs > .07$, $zs > 2.55$, $ps < .01$, reflecting that youth who reported heightened academic engagement in the beginning of the year were more likely to increase their engagement over six months, whereas those with dampened academic engagement in the beginning of the year tended to decrease their engagement over time.

The estimates of average similarity reflect the influence (i.e., socialization) process, that is, whether youth became more similar in terms of academic engagement to the peers they view as high in social status. As shown in Table 5, the estimates were positive and significant for sociometric and perceived popularity, $bs > 3.82$, $zs > 2.05$, $ps < .05$, but not admiration, $b = 3.67$, $z = 1.37$, $p = .17$, indicating that youth became more similar in terms of academic engagement over time to peers they personally liked and perceived to be popular, but not to peers they admired.

Similarities and Differences in the United States and China

To compare the social-status network features and selection and influence processes in the United States and China, the different parameter estimates from each set of groups in each country were combined using meta-analyses. The differences between the combined parameter estimates for each country were then compared with independent t-tests (Ripley, Snijders, Boda,

Voros, & Preciado, 2016). The parameter estimates for the structural features (e.g., density) for each of three types of social-status networks generally did not differ in the United States and China, $ts < 1.50$, $ps > .14$. The one exception was reciprocity for perceived popularity, $t = 1.67$, $p < .05$: Chinese (vs. American) youth were more likely to reciprocate perceived popularity nominations. The estimates of gender effects also did not differ in the two countries, $ts < 1$. In terms of selection and influence processes, there was no differences between the United States and China in any of the parameters, $ts < 1$, $ps > .32$, except for the ego effect of perceived popularity, $t = -10$, $p < .001$, indicating that youth with higher academic engagement were more likely to send out perceived popularity nominations in China than the United States.

3.4 Discussion

There has been much attention to the characteristics of high-status youth in the peer system (e.g., who are viewed as cool by peers; Galván, Spatzier, & Juvonen, 2011; LaFontana & Cillessen, 2002; Meijs, Cillessen, Scholte, Segers, & Spijkerman, 2010; Véronneau, Vitaro, Brendgen, Dishion, & Tremblay, 2010). This attention has arisen largely out of the assumption that youth with heightened social status are particularly powerful in setting the norms in the peer system, ultimately playing an important role in socializing their peers' beliefs and behavior (Rodkin & Ryan, 2012). The current research is the first to examine the socialization role of high-status youth in the academic arena. Our findings indicate that high-status peers play a socialization role in youth' academic engagement during early adolescence—a time of heightened peer influence (for reviews, see Collins & Laursen, 2004; Sandstrom, 2011)—but this is limited to social status as manifest in sociometric and perceived popularity: Youth's academic engagement became more similar over time to the peers whom they personally perceived as likeable (i.e., sociometric popularity) and popular (i.e., perceived popularity), but not to those

whom they perceived as admirable. Notably, social status operated similarly in the United States and China.

Socialization Processes

Consistent with prior experimental research indicating that sociometrically and perceived popular peers are influential in changing youth's opinions about hypothetical antisocial-related issues in the United States (Cohen & Prinstein, 2006), I found that both American and Chinese youth's academic engagement was predicted over time by the academic engagement of peers they saw as likable and those they saw as popular, taking into account youth's initial similarity with such peers. Thus, it appears that youth may use the behavior of likable and popular peers as a guide for their own behavior. Sociometric and perceived popularity at the individual—similar to the classroom or school—level may define what is appropriate and desirable. Interestingly, youth's academic engagement was not shaped by the engagement of youth they viewed as admirable. Perhaps admiration does not confer power to the same extent as the other two forms of social status. It may also be that there is more peer pressure to conform to the academic norms set by sociometric and perceived popular peers (Brown & Bakken, 2008), than admired peers. It may also be the case that the standards set by admired peers are so high (Zhang et al., under review), that they do not appear attainable to youth.

Selection Processes

Youth's perceptions of likable and admirable peers appeared to be driven in part by their own characteristics. Specifically, youth nominated peers high on these two types of social status who were similar to them in terms of their academic engagement. The selection effect for sociometric popularity may stem from the fact that youth tend to nominate their friends as peers they like. Prior research shows that friends share similar academic characteristics (e.g., Flashman,

2012; Kindermann, 2007; Wentzel, Barry, & Caldwell, 2004), both because youth select friends with similar characteristics and adopt the characteristics of their friends over time (e.g., Shin & Ryan, 2014). The selection effect for admiration may reflect that youth nominate a large proportion of their friends as admirable. However, it may also be driven by a tendency to see one's own characteristics as valuable, such that peers who possess such characteristics are put on a pedestal. Youth's academic engagement did not play a role in their nominations of peers they perceived as popular. It may be that youth make perceived popularity nominations based on societal definitions shared by the entire peer system rather than their personal characteristics and standards. Moreover, youth may be less driven to attribute their own characteristics to peers perceived as popular given that during adolescence such youth are sometimes seen in a negative light despite their visibility and power (e.g., Cillessen & Borch, 2006; Rodkin et al., 2006; Rose et al., 2004)

Social-status Network Structural Features

A key contribution of the current research is that it documented the structural features of social status networks, which unlike friendship networks, has received little, if any, attention. The networks of sociometric popularity, perceived popularity, and admiration showed a high degree of similarity in terms of their structural features: They were all characterized by low density, high hierarchy, with a preference for youth to nominate same-gender peers. This pattern of social status network features is similar to the pattern for friendship networks (e.g., Knecht et al., 2010; Laninga-Wijnen et al., in press; Logis et al., 2013; Shin & Ryan, 2014).

Despite the similarities in the structural features of the three types of social status networks, there were also differences among the three. Consistent with the findings regarding the selection process, youth only tended to reciprocate nominations of sociometric popularity and

admiration, but not perceived popularity. Such findings indicate that the nominations of sociometric popular and admirable peers may be driven by individual youth's personal standards; however, the nominations of perceived popularity may rely on the consensus of the larger peer system. In addition, the reciprocity effects for sociometric popularity and admiration networks is in line with that for friendship networks (e.g., Knecht et al., 2010; Laninga-Wijnen et al., in press; Logis et al., 2013; Shin & Ryan, 2014).

Beyond the West

Addressing concerns that psychological research relies heavily on Western samples, leading to issues with the generalizability of the psychological phenomenon studied (Arnett, 2008; Heine & Norenzayan, 2010), the current research examined the socialization role of high-status youth not only in the United States among mostly European American youth, but also in a traditional area of Mainland China. Despite differences in the cultural norms and values (Oyserman et al., 2002; Triandis et al., 1988) as well the structure of the middle schools in the United States and China (e.g., students travel to different classrooms in the United States whereas teachers travel to different classrooms in China), the social-status networks of the American and Chinese youth studied were similar: They were characterized by low density, hierarchy, and a preference for nominating same-gender peers as high in social status. Significantly, the selection and influence processes associated with the three types of social status also operated similarly in the two countries.

Taken together with findings from prior research, the current findings suggest that high-status youth may play an important role in cultural socialization in the academic arena in the United States and China. Consistent with the heightened value placed on academics in China, high-status in the peer system is more strongly associated with academic engagement and

achievement in China than the United States (e.g., Li et al., 2012; Zhang et al., under review). This difference in the characteristics of high-status youth in the countries, along with the role of such high-status youth in their peers' academic engagement, may lead to normative differences in American and Chinese youth's academic engagement. Indeed, the decline in youth's academic engagement over early adolescence typical in the United States is not evident among youth in China who tend to have higher academic engagement overall (e.g., Qu, Pomerantz, Wang, Cheung, & Cimpian, 2016; Wang & Pomerantz, 2009), including in the current research. Unfortunately, the statistical tool used in the current research (i.e., SIENA) does not permit a test of this mediational hypothesis—that is, differences in American and Chinese youth's academic engagement over early adolescence are due to the difference in the academic engagement of high status youth in the United States and China.

Limitations and Future Directions

The current research has several limitations that point to directions for future research. First, given limitations of the statistical tool used in the current research (i.e., SIENA), it is not possible to determine whether the influence effects of sociometric and perceived popularity are unique or overlapping. Prior research has identified different configurations of youth with sociometric popularity and perceived popularity. Some youth are perceived by their peers as both likable and popular (i.e., overlapping), whereas others are perceived as likable or popular only (i.e., uniqueness; Cillessen & Borch, 2006; LaFontana & Cillessen, 2002; Rodkin et al., 2000). In the current research, on the one hand, it may be youth who possess both sociometric and perceived popularity that serve as socializer given the substantial association between these two types of social status (see Appendix G). In addition, youth who are perceived as popular but are not likable tend to exhibit heightened aggression (Cillessen & Rose, 2005; Rodkin et al., 2000;

Rodkin & Ryan, 2012). Hence, perceived popularity without sociometric popularity may be influential for aggression, but not academic engagement. On the other hand, the two types of social status may have unique socialization effects. Youth are likely to nominate their real and wishful friends as likable (Kwon & Lease, 2014), such that the socialization process of sociometric popular peers may resemble friends. In contrast, perceived popular peers are not necessarily individual youth's own friends. Their socialization effect may come out of the power they possess in defining peer norms.

Second, our assessment of social status relied solely on positive nominations (i.e., peers who are likable, popular, and admirable) as has been common in some research (e.g., Galván et al., 2011; Graham et al., 1998; Taylor & Graham, 2007); I did not ask youth to make negative nominations (e.g., who is disliked) as has been common in other research (e.g., Cillessen & Borch, 2006; Garandeau, Ahn, & Rodkin, 2011). This approach was taken in large part because school personnel felt that it would undermine peer relations to ask students to make negative nominations, and would permit participation only if such nominations were excluded. Collecting negative nominations would have allowed us to detect if approach and avoidance orientations were involved in the socialization process. Positive nominations provide information about the contribution of an approach orientation—that is, the extent to which youth adopt the academic engagement of youth with high social status who they want to whom they may want to be similar or by whom they may want to be liked. Only negative nominations, however, can provide information on the extent to which youth are motivated to move away from youth who are rejected or looked down upon by their peers.

Third, although I made every effort to recruit comparable samples in the United States and China, our samples do not fully represent the diversity within each country. Specifically, our

American sample consisted of mainly European American youth. In China, there is a substantial urban-rural divide. Rural areas are not as modernized, developed, and Westernized as urban areas. Although our Chinese sample was not from a large metropolitan area, it was from an economically developed urban area in which there is exposure to Western ideas. Future research should recruit youth from more diverse background in both of the countries. Moreover, in the current research, I only had five groups (i.e., grades or teams) in the United States and nine groups (i.e., classrooms) in China, therefore, the power of our findings may be limited. In the future, larger-scale research needs to be conducted. Such research will also allow for examination of whether and how school structure may moderate the socialization process.

Conclusions

The current research makes inroads into understanding of the socialization role of high-status peers in youth's academic engagement during early adolescence in the United States and China. Social status in the peer system matters, but not all types of social status play a role: The academic engagement of peers that youth nominated as high in sociometric and perceived popularity, but not of peers they admired, was predictive over time of youth's own academic engagement in both the United States and China. Notably, this effect was evident over and above any initial similarity youth had with the high-status peers that they nominated. Although additional research is needed to understand how such socialization processes operate under diverse cultural and educational system, the tendency for similarity in these processes in the United States and China, which differ in terms of these systems, suggests that social status in the peer system is a fundamental contributor to youth's academic engagement.

CHAPTER 4: GENERAL CONCLUSIONS

The relationships youth have with their peers are an important aspect of their lives during adolescence, contributing to their development (Collins & Steinberg, 2006; Smetana et al., 2006). Prior research provides support that friends serve as a source of influence in adolescence (e.g., Altermatt & Pomerantz, 2003, 2005; Barry & Wentzel, 2006; Flashman, 2012; Franken et al., 2015; Knecht et al., 2010; Ryan, 2001; Shin & Ryan, 2014; Wentzel et al., 2004). However, youth's peer relations operate in multiple layers. In addition to a relatively small circle of friends, youth are also embedded within a large peer system consisting mainly of students in their own class or school. Given that adolescence is also a time when youth seek to establish their identity in the large peer system (Brown & Bakken, 2008; Erikson, 1968; Sandstrom, 2011), social status may be of particular importance during this phase of development.

The goal driving my dissertation was to move toward understanding both the antecedents and consequences of social status in not only the United States where the large majority of the research has been conducted, but also China where cultural values that are different from those in the United States may lead to differences in the two countries in social status in the peer system. To this end, I analyzed data from a three-wave study conducted in the United States and Mainland China. Study 1 examined if there are differences in the two countries in the attributes that contribute to social status in the early adolescent peer system. The findings indicated that social status—as reflected in likability, perceived popularity, and admiration—was characterized by peer nominations of positive behavior (i.e., prosocial behavior and academic engagement) in both the United States and China. In line with cultural values (e.g., interdependence), however, this was stronger in China (vs. the United States), with youth's positive behavior being a more robust predictor of their social status over time in China. This difference was the largest for

perceived popularity, which had the least positive behavioral nomination profile in the United States, but not China. Thus, it appears that American and Chinese cultural values and norms shape which youth attain heightened social status in the peer system during early adolescence.

Study 2 took a step further to examine the socialization role of these high-status youth in the two countries. I found that youth's academic engagement came to reflect over time the academic engagement of the peers they nominated as high in social status. Specifically, the academic engagement of peers that youth nominated as high in sociometric and perceived popularity, but not of peers they admired, was predictive over time of youth's own academic engagement in both the United States and China. This effect was evident over and above any initial similarity youth had with the high-status peers they nominated. Notably, these processes were similar in the United States and China suggesting that the socialization function of high social status peers may be similar in the two countries.

Collectively, the two studies suggest that high-status youth may serve as an important medium in the process of cultural socialization. Consistent with cultural values and norms, social status was characterized by more positive behavioral nomination profiles in China than the United States. Such a difference parallels the normative differences among youth in the two countries in the academic domain. For example, the typical decline in youth's academic engagement over early adolescence in the United States is not evident among youth in China where youth tend to show higher academic engagement across this phase of development (e.g., Qu, Pomerantz, Wang, Cheung, & Cimpian, 2016; Wang & Pomerantz, 2009). Given that high-status youth appear to play a role in socializing their peers' academic engagement in both the United States and China, they may be key in the transmission of cultural values and norms,

leading to this normative difference among American and Chinese youth in the academic domain over early adolescence.

CHAPTER 5: TABLES AND FIGURE

Table 1

STUDY 1: Correlations, Means, and Standard Deviations of Peer Nominations of Social Status

	1	2	3	4	5	6	7	8	9
Sociometric popularity									
1. Wave 1	-	.85	.81	.72	.71	.71	.85	.79	.69
2. Wave 2	.77	-	.82	.72	.73	.69	.75	.79	.70
3. Wave 3	.79	.87	-	.76	.75	.75	.76	.76	.73
Perceived popularity									
4. Wave 1	.75	.62	.61	-	.96	.91	.68	.61	.48
5. Wave 2	.75	.75	.70	.88	-	.91	.66	.63	.50
6. Wave 3	.68	.76	.75	.76	.87	-	.66	.59	.55
Admiration									
7. Wave 1	.77	.65	.66	.86	.79	.68	-	.87	.78
8. Wave 2	.69	.75	.71	.76	.84	.79	.87	-	.82
9. Wave 3	.73	.76	.78	.75	.82	.80	.84	.93	-
United States									
<i>M</i>	.11 (9.12)	.10 (8.23)	.10 (8.16)	.21 (17.19)	.22 (17.74)	.25 (20.42)	.11 (8.81)	.11 (8.76)	.09 (7.83)
<i>SD</i>	.07 (5.99)	.07 (5.99)	.07 (5.81)	.22 (18.20)	.23 (19.08)	.24 (19.63)	.07 (6.22)	.08 (6.81)	.07 (5.73)
China									
<i>M</i>	.23 (12.78)	.25 (13.62)	.26 (14.56)	.14 (7.60)	.15 (8.09)	.18 (10.07)	.12 (6.85)	.13 (7.20)	.15 (8.55)
<i>SD</i>	.11 (6.01)	.12 (6.23)	.12 (6.18)	.16 (9.13)	.17 (9.06)	.16 (8.85)	.14 (8.03)	.15 (8.59)	.15 (8.44)

Note. Correlations for the American sample are in the upper triangle; those for the Chinese sample are in the lower triangle. All correlations are significant at $p < .001$. Numbers in parentheses are the actual number of nominations that each student received.

Table 2

STUDY 1: Zero-order Correlations between Social Status and Prosocial behavior and Academic Engagement

	Prosocial behavior						Academic Engagement					
	Wave 1		Wave 2		Wave 3		Wave 1		Wave 2		Wave3	
Social Status	US	China	US	China	US	China	US	China	US	China	US	China
Sociometric popularity	.68 _{1a}	.86 _{1b}	.62 _{1a}	.86 _{1b}	.60 _{1a}	.79 _{1b}	.68 _{1a}	.75 _{1b}	.64 _{1a}	.76 _{1b}	.61 _{1a}	.74 _{1b}
Perceived popularity	.40 _{2a}	.76 _{2b}	.29 _{2a}	.73 _{2b}	.29 _{2a}	.73 _{2b}	.43 _{2a}	.78 _{1b}	.37 _{2a}	.76 _{1b}	.35 _{2a}	.72 _{1b}
Admiration	.72 _{1a}	.78 _{2b}	.71 _{3a}	.77 _{2b}	.74 _{3a}	.81 _{1b}	.71 _{1a}	.90 _{2b}	.71 _{3a}	.91 _{2b}	.73 _{3a}	.92 _{2b}

Note. Within each row, for a given behavior, correlations with different letter subscripts are different in the United States and China at each wave ($ps < .05$). Within each column, correlations with different number subscripts are different within the United States or China at each wave ($ps < .05$).

Table 3

STUDY 1: Standardized Estimates for the Cross-Lagged Paths between Behavior and Social Status Adjusting for Gender

	Wave 1 to 2		Wave 2 to 3		Country difference	Model fit
	US	China	US	China	$\Delta\chi^2$	
Sociometric popularity						
Prosocial behavior						
Path a	.05*	.32***	.05*	.31***	37.08***	χ^2 s < 58, TLIs > .94, CFIs > .99, RMSEAs < .09
Path b	.06*	.06*	.04*	.07*	.83	
Academic engagement						
Path a	.10***	.21***	.10***	.21***	11.91***	χ^2 s < 18, TLIs > .99, CFIs > .99, RMSEAs < .04
Path b	-.01	-.01	-.01	-.01	3.01	
Perceived popularity						
Prosocial behavior						
Path a	-.03*	.18***	-.03*	.20***	48.86***	χ^2 s < 58, TLIs > .94, CFIs > .99, RMSEAs < .08
Path b	-.03	-.02	-.03	-.02	3.29	
Academic engagement						
Path a	-.02	.15***	-.02	.17***	29.00***	χ^2 s < 67, TLI > .95, CFIs > .99, RMSEAs < .09
Path b	-.03*	-.02*	-.03*	-.02*	.00	
Admiration						
Prosocial behavior						
Path a	.25***	.17***	.26***	.17***	.71	χ^2 s < 30, TLIs > .97, CFIs > .99, RMSEAs < .06
Path b	.03*	.04*	.03*	.05*	.05	
Academic engagement						
Path a	.22***	.39***	.25***	.41***	41.74***	χ^2 s < 60, TLIs > .95, CFIs > .99, RMSEAs < .08
Path b	-.01	.07*	-.01	.08*	4.09*	

Note. Gender was included as a covariate. Given that there was no consistent pattern for time difference, the cross-lagged paths in the same direction were constrained to be equal across different frames within the United States and China. Estimates are for cross-lagged paths labeled in Figure 1, with path a representing behavior to social status path at wave 1 and 2, path b representing social status to behavior path at wave 1 and 2. When there were country differences, estimates are from the SEMs in which the cross-lagged paths were left constrained between the United States and China. When there were no country differences, estimates are from the SEMs in which the cross-lagged paths were constrained to be equal between the United States and China.

* $p < .05$. ** $p < .01$. *** $p < .001$

Table 4

STUDY 2: Means, SDs of Social-status Network Characteristics and Changes from Wave 1 to 2

	Sociometric Popularity		Perceived Popularity		Admiration	
	Wave 1	Wave 2	Wave 1	Wave 2	Wave 1	Wave 2
Network characteristics						
Density index	.20 (.08)	.20 (.08)	.18 (.07)	.19 (.07)	.13 (.02)	.13 (.03)
Reciprocity index	.25 (.05)	.49 (.09)	.12 (.05)	.53 (.10)	.11 (.04)	.47 (.07)
Transitivity index	.49 (.09)	.51 (.10)	.53 (.10)	.55 (.14)	.47 (.07)	.47 (.10)
Average outdegree	12.37 (2.60)	12.57 (2.74)	12.33 (6.82)	13.15 (7.11)	8.39 (2.14)	8.65 (2.37)
Total number of ties	766.07 (147.28)	756.07 (110.71)	818.36 (603.05)	846.79 (592.49)	533.57 (218.98)	539.57 (228.44)
Network Changes	Wave 1 to 2		Wave 1 to 2		Wave 1 to 2	
Number of leavers	15		15		15	
Number of joiners	0		0		0	
Jaccard index	.35 (.04)		.34 (.10)		.31 (.03)	
Hamming distances	700.64 (109.62)		700.21 (380.18)		533.07 (204.46)	

Note. The values in this table were based on 14 classrooms ($N = 5$ in the United States and 9 in China) included in SIENA analyses. Values in parentheses are standard deviations. A total of 15 participants left the network (e.g., moved out to a different school) between Wave 1 and Wave 2, students who moved into our recruited classrooms at Wave 2 did not participate in the study.

Table 5

STUDY 2: SIENA Estimates for Social Status and Academic Engagement

Variable	Sociometric Popularity		Perceived Popularity		Admiration	
	Estimate (b)	SE	Estimate (b)	SE	Estimate (b)	SE
Network effect						
Outdegree (density)	-1.90***	.09	-1.58***	.14	-1.94***	.06
Reciprocity	.64***	.08	-.03	.07	.24***	.06
Transitive ties	.16***	.02	.18***	.03	.26***	.02
Three-cycles	-.15***	.01	-.12***	.02	-.23***	.04
Balance	.00	.01	.03***	.01	.02*	.01
Selection effects						
Sex (female) alter	.09	.05	-.04	.05	.10	.05
Sex (female) ego	-.04	.05	.06	.06	.01	.05
Same sex	.62***	.08	.24***	.05	.46***	.07
Alter	.02	.01	.03***	.01	.04***	.01
Ego	.00	.01	-.02	.02	.04	.02
Similarity (selection)	.39***	.08	.03	.12	.47***	.15
Influence effects						
Linear shape	-.04	.04	-.01	.05	-.07	.04
Quadratic shape	.08**	.03	.15**	.06	.03	.04
Average similarity (influence)	3.83*	1.87	7.68**	2.97	3.67	2.68

Note. Models represent separate analyses for the types of social status (i.e., sociometric popularity, perceived popularity, and admiration). B = the unstandardized multinomial logit coefficient. Sex was coded as 0=boys, 1=girls.

* $p < .05$; ** $p < .01$; *** $p < .001$.

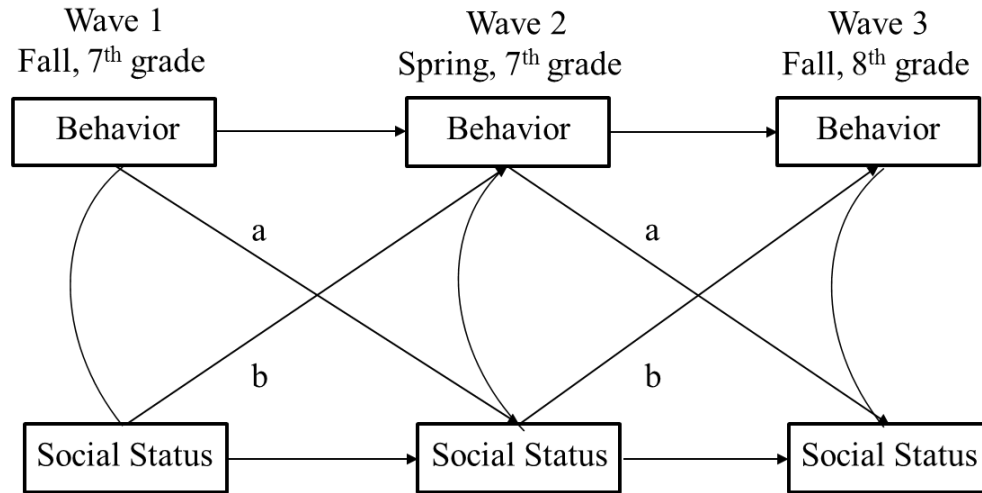


Figure 1. Bidirectional cross-lagged model between attribute (i.e., prosocial behavior or academic engagement) and social status (i.e., sociometric popularity, perceived popularity, or admiration) in Study 1. Gender was included as a covariate, which predicted all six variables included in the model.

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Appendix A

STUDY 1: Descriptions of Self-reported Measures

Measures	Descriptions and examples	Internal consistency	Measurement equivalence
Antisocial behavior	Assessed with nine items adopted from prior measures (Barber, Stolz & Olsen, 2005; Stattin & Kerr, 2000). Youth indicated how often (1 = <i>never</i> , 5 = <i>very often</i>) they engaged in antisocial behaviors (e.g., “I lie or cheat” and “I’ve bullied someone or together with others bullied other students”).	α s = .83 and .92 in the United States and .80 and .93 in China	Two-group confirmatory factor analyses were conducted to examine the metric invariance of the measures over time and between the United States and China in the context of structural equation modeling (SEM). The measure possessed metric invariance over time and between the two countries based on Chen’s (2007) criteria.
Academic engagement	Assessed with 32 items spanning cognitive, behavior, and affective engagement. Cognitive engagement was assessed with 12 items were from the meta-cognitive scales of Dowson and McInerney’s (2004) measure of self-regulated learning (e.g., “I try to make sure that I understand what I am learning.”). Behavioral (e.g., “I try hard to do well in school.”) and affective (e.g., “When I work on something in class, I feel interested.”) engagement were assessed with the 20 items by Skinner, Kindermann, and Furrer (2009). Youth indicated the extent to which each was true of them (1 = <i>not at all true</i> , 5 = <i>very true</i>).	α s = .93 and .94 in the United States and .94 and .95 in China	The measure possessed metric invariance over time and between the two countries.

Appendix B

STUDY 1: Associations between Self-reported and Peer-nominated Behavior

	Peer-nominated Prosocial behavior						Peer-nominated Academic Engagement					
	Wave 1		Wave 2		Wave 3		Wave 1		Wave 2		Wave3	
	US	China	US	China	US	China	US	China	US	China	US	China
Self-reports												
Antisocial Behavior	-.24***	-.08	-	-.11*	-	-.09	-	-.11*	-	-.15**	-	-.11*
			.29***		.21***		.27***		.32***		.20***	
Academic Engagement	.28***	.11*	.23***	.17***	.25***	.17***	.31***	.21***	.28***	.24***	.26***	.26***

* $p < .05$. ** $p < .01$. *** $p < .001$

Appendix C

STUDY 1: Zero-order Correlations between Social Status and Self-reported Antisocial behavior and Academic Engagement

	Antisocial behavior						Academic Engagement					
	Wave 1		Wave 2		Wave 3		Wave 1		Wave 2		Wave3	
	US	China	US	China	US	China	US	China	US	China	US	China
Sociometric popularity	-.09 _a	-.01 _b	- .17 _a ***	-.02 _b	-.02 _a	-.08 _a	.14 _a **	.09 _a	.15 _a **	.08 _a	.09 _a	.12 _a *
Perceived popularity	-.06 _a	.00 _b	-.06 _a	.04 _b	.09 _a	.01 _a	.08 _a	.11 _a *	.07 _a	.08 _a	.01 _a	.10 _a *
Admiration	- .15 _a **	-.09 _a *	- .20 _a ***	-.09 _a *	- .12 _a *	-.09 _a *	.19 _a ***	.18 _a ***	.21 _a ***	.19 _a ***	.14 _a **	.18 _a ***

Note. Coefficients greater than .09 Within each row, for a given behavior, correlations with different letter subscripts are different in the United States and China at each wave ($ps < .05$).

* $p < .05$. ** $p < .01$. *** $p < .001$

Appendix D

STUDY 1: Standardized Estimates for the Cross-Lagged Paths between Self-reported Behavior and Social Status Adjusting for Gender

	Wave 1 to 2		Wave 2 to 3		Country difference $\Delta\chi^2$	Model fit
	US	China	US	China		
Sociometric popularity						
Antisocial behavior						
Path a	-.04	.02	-.04	.02	4.25	$\chi^2_s < 15$, TLIs > .98, CFIs > .99,
Path b	-.02	-.02	-.02	-.02	.01	RMSEAs < .04
Academic engagement						
Path a	.02	.01	.02	.01	2.76	$\chi^2_s < 9$, TLIs > .99, CFIs > .99,
Path b	-.01	-.01	-.01	-.01	.90	RMSEAs < .02
Perceived popularity						
Antisocial behavior						
Path a	.00	.00	.00	.00	1.76	$\chi^2_s < 18$, TLIs > .98, CFIs > .99,
Path b	.01	.01	.01	.01	.01	RMSEAs < .04
Academic engagement						
Path a	.01	.01	.01	.01	2.69	$\chi^2_s < 12$, TLI > .99, CFIs > .99,
Path b	.02	.01	.02	.01	1.00	RMSEAs < .03
Admiration						
Antisocial behavior						
Path a	-.03	-.01	-.04	-.02	1.32	$\chi^2_s < 15$, TLIs > .98, CFIs > .99,
Path b	-.02	-.03	-.01	-.03	1.05	RMSEAs < .04
Academic engagement						
Path a	.04**	.02**	.04**	.02**	2.75	$\chi^2_s < 11$, TLIs > .99, CFIs > .99,
Path b	.02*	.04*	.02*	.04*	.51	RMSEAs < .02

Note. Gender was included as a covariate. Given that there was no consistent pattern for time difference, the cross-lagged paths in the same direction were constrained to be equal across different frames within the United States and China. Path a representing self-reported behavior to social status path at wave 1 and 2, path b representing social status to self-reported behavior path at wave 1 and 2. Since there were no country differences, estimates are from the SEMs in which the cross-lagged paths were constrained to be equal between the United States and China.

* $p < .05$. ** $p < .01$. *** $p < .001$

Appendix E

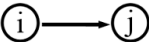
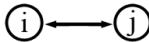
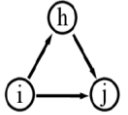
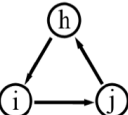
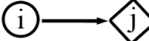
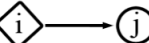
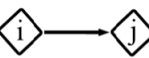
STUDY 1: Correlations, Means, and Standard Deviations of Peer Nominations of Behavior

	1	2	3	4	5	6
Prosocial Behavior						
1. Wave 1	-	.81	.85	.92	.80	.88
2. Wave 2	.87	-	.86	.84	.91	.81
3. Wave 3	.81	.91	-	.84	.81	.92
Academic Engagement						
4. Wave 1	.83	.75	.70	-	.91	.92
5. Wave 2	.76	.85	.79	.88	-	.87
6. Wave 3	.72	.79	.82	.85	.95	-
United States						
<i>M</i>	.20	.19	.18	.26	.26	.26
	(16.51)	(15.28)	(15.43)	(21.82)	(20.62)	(22.48)
<i>SD</i>	.11	.10	.11	.14	.14	.14
	(9.41)	(8.77)	(9.38)	(11.91)	(11.97)	(12.87)
China						
<i>M</i>	.25	.26	.31	.27	.27	.31
	(13.31)	(12.98)	(16.80)	(14.59)	(14.04)	(16.84)
<i>SD</i>	.14	.15	.13	.19	.20	.19
	(8.07)	(8.71)	(7.76)	(11.25)	(11.98)	(10.84)

Note. Correlations for the American sample are in the upper triangle; those for the Chinese sample are in the lower triangle. All correlations are significant at $p < .001$. Numbers in parentheses are the actual number of nominations that each student received in the United States or China.

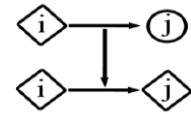
Appendix F

STUDY 2: Conceptual Meaning and Graphic Representation of SIENA Terms

SIENA term	Conceptual meaning	Graphic representation
Actor	Participants	
Outgoing ties	Social status nominations	
<i>Network effect</i>		
Density (outdegree)	The tendency of actors to have outgoing ties.	
Reciprocity	The tendency for actors to reciprocate a relationship.	
Transitive ties	The tendency for actors to have triadic patterns of relationship. Transitive triplets are hierarchical in nature.	
Three-cycles	The tendency toward forming three-cycles, which is opposed to hierarchy.	
Balance	The structural equivalence with respect to outgoing ties.	
<i>Selection effects</i>		
Sex (female) alter	Females tend to receive more nominations than males.	
Sex (female) ego	Females tend to nominate other youth as having high social status than males.	
Same sex	Youth tend to nominate high-status peers with same gender.	
Alter	Effect of nominee's attribute on receiving social status nominations.	
Ego	Effect of the nominator's attribute on making social status nominations.	
Similarity (selection)	The tendency for youth to nominate peers with similar attributes.	
<i>Influence effects</i>		
Linear/ Quadratic shape	The overall tendency toward high or low values on a behavioral variable.	

Average similarity
(influence)

The tendency for actors to adopt the behaviors of their high-status peers.



Appendix G

STUDY 2: Means, SDs, and Correlations Among the Central Variables

	1	2	3	4	5	6	7	8
Sociometric popularity								
1. Wave 1	-							
2. Wave 2	.85	-						
Perceived popularity								
3. Wave 1	.48	.37	-					
4. Wave 2	.48	.45	.93	-				
Admiration								
5. Wave 1	.70	.57	.68	.64	-			
6. Wave 2	.65	.66	.60	.65	.87	-		
Academic engagement								
7. Wave 1	.23	.23	.04	.04	.19	.20	-	
8. Wave 2	.22	.24	.03	.03	.18	.20	.71	-
<i>M</i>	.17	.19	.18	.19	.12	.13	3.69	3.62
<i>SD</i>	.12	.13	.21	.22	.12	.13	.70	.74

Note. Correlations greater than .17 are significant ($p < .01$).